



County Palatine of Chester.

REPORT

OF THE

Medical Officer of Health

FOR THE YEAR 1914.

BY

MEREDITH YOUNG, M.D., D.P.H.,

Of Lincoln's Inn, Barrister-at-Law.

PRESENTED TO THE

Public Health & Housing Committee


OF THE COUNTY COUNCIL,

July 16th, 1915.

CHESTER:

PHILLIPSON AND GOLDER, PRINTERS, EASTGATE ROW AND FRODSHAM STREET.





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REPORT
OF THE
Medical Officer of Health
For the Year ending December 31st, 1914.

*To the Public Health and Housing Committee of the
County Council of the County Palatine of Chester
and to the Members of the County Council.*



INTRODUCTION.

*To the Chairman and Members of the
Public Health and Housing Committee
of the Cheshire County Council.*

MR. CHAIRMAN AND GENTLEMEN,

I have the honour to present to you my Report on the health and general sanitary condition of the Administrative County during the year 1914. The outstanding statistical features of this Report are a further decline in the birth-rate, an almost imperceptible fall in the general death-rate from all causes, a fairly substantial reduction in infant mortality and in deaths from zymotic or preventible disease, a slight increase in the death-rate from cancer and malignant disease and a death-rate from tubercular diseases maintained at approximately the same level as that obtaining for the past six years.

Infectious diseases have shown a markedly increased prevalence during 1914 owing to the large number of cases of scarlet fever and diphtheria notified.

Fairly substantial progress has been made in public health work, though the anti-tuberculosis campaign has received several regrettable checks. Still, to use language now rendered familiar by reports from the seat of war, many positions under this scheme have been consolidated. In many instances schemes for the sanitary improvement of the County have been held back owing to the exigencies of the times, but most of the preliminaries have been carried out so that when the time comes to go forward with them expedition will be ensured.

I much regret that the Report is incomplete owing to the non-receipt of the Annual Report from the Borough of Macclesfield at the date of this Report going to the printers. It is now the third year in succession in which this Annual Report has been received too late to permit of my making use of it for the purposes of this Report. Your Committee and others are thus deprived of much valuable information. I hope that in future years there will be no repetition of the delay in the submission of the Report referred to.

As in previous years I have to record my indebtedness to your Committee, to my brother officials, to the Medical Officers of Health, Surveyors and Inspectors of the several districts and to my own staff for considerate, sustained and cheerfully accorded assistance.

I have the honour to be,

Mr. Chairman and Gentlemen,

Your obedient servant,

MEREDITH YOUNG.

*Public Health Department,
43, Foregate Street,
Chester.*

June 24th, 1915.

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REPORT OF THE Medical Officer of Health

For the Year ended December 31st, 1914.

Section I.—Area and Population.

Area.

In the Census Report of 1901 this is given as 645,918 acres and in the Census Report of 1911 as 644,172. The diminution is due to the extension of the Stockport County Borough boundaries in 1901. Excluding Wallasey, which is now a County Borough, the area of the County is 640,823 acres.

This area is distributed as follows:—

6 Municipal Boroughs	...	...	15,588 acres.
35 other Urban Districts	...	...	80,732 „
12 Rural Districts	...	...	544,503 „
			<hr/>
Total	...	...	640,823 „
			<hr/>

POPULATION--CENSUS, 1911.

Population.

At the Census of 1901 this was 599,070, but the extension of the County Borough of Stockport in Nov., 1901, reduced this population to 593,865. At the Census of 1911 the population of the Administrative County was 597,771 (excluding Wallasey).

At Midsummer, 1914, the population was estimated to be 622,494, distributed as follows:—

6 Municipal Boroughs ...	...	172,988 persons.
35 other Urban Districts	...	258,800 „
12 Rural Districts	...	190,706 „
Total	...	<u>622,494</u> „

Census, 1911.

The Report of the 1911 Census, shows the following figures for the Administrative County (excluding Wallasey):—

Area in Statute Acres (Land and Inland Water)	640,823
Families or Separate Occupiers	133,626
Persons	597,771
Males	286,380
Females	311,391

The figures for the various Districts are as under:—

Municipal Boroughs. (6)	Population.		Popula- tion Estimated Mid Year,	Families or Separate Occupiers.
	1901.	1911.	1914.	1911.
Congleton ...	10707	11310	11310	2665
Crewe ...	42074	44970	45964	9955
Dukinfield ...	18929	19426	20000	4626
Hyde ...	32766	33444	34797	8019
Macclesfield ...	34624	34804	34084	8436
Stalybridge ...	27673	26514	26833	6399

Urban Districts. (35)	Population.		Popula- tion Estimated Mid Year,	Families or Separate Occupiers,
	1901.	1911.	1914.	1911.
Alderley Edge ...	2891	3143	3200	701
Alsager ...	2597	2743	2743	640
Altrincham ...	16831	17816	18249	4107
Ashton-upon-Mersey ...	5563	7236	7750	1746
Bollington ...	5245	5225	5224	1212
Bowdon ...	2788	3044	3050	665
Bredbury and Romiley	7185	8684	9275	2115
Bromborough ...	1891	1974	2021	403
Buglawton ...	1452	1439	1439	337
Cheadle and Gatley ...	7916	9914	11460	2199
Compstall ...	875	908	912	223
Ellesmere Port and Whitby ...	4275	10366	13596	1963
Hale ...	4562	8351	9503	1945
Handforth ...	911	935	939	211
Hazel Grove & Bramhall	7934	9634	10762	2268
Higher Bebington ...	1540	1689	1775	353
Hollingworth ...	2447	2581	2581	634
Hoole ...	5341	5929	5994	1224
Hoylake & West Kirby	10911	14029	15113	2890
Knutsford ...	5172	5760	5734	1135
Lower Bebington ...	8398	11412	13164	2300
Lymm ...	4707	4989	5084	1177
Marple ...	5595	6484	6600	1590
Middlewich ...	4669	4910	4957	1094
Mottram in Longdendale	3128	3049	3049	756
Nantwich ...	7722	7815	7850	1691
Neston and Parkgate ...	4154	4596	4854	935
Northwich ...	17611	18151	18900	3831
Runcorn ...	16491	17354	17640	3767
Sale ...	12088	15046	16110	3563
Sandbach ...	5558	5723	5723	1340
Tarporley ...	2644	2604	2591	598
Wilmslow ...	7361	8153	8400	1947
Winsford ...	10382	10772	10850	2372
Yeardsley-cum-Whaley	1487	1659	1708	390

CENSUS, 1911—DENSITY OF POPULATION—TENEMENTS.

Rural Districts. (12)	Population.		Popula- tion Estimated Mid Year,	Families or Separate Occupiers,
	1901.	1911.	1914.	1911.
Bucklow	19890	22870	23609	4959
Chester	10908	12448	12948	2381
Congleton	12220	12821	12845	2755
Disley	2827	2958	3002	716
Macclesfield	15740	16628	16929	3659
Malpas	4488	4643	4693	1030
Nantwich	23197	24992	25466	5458
Northwich	22073	23270	24100	4983
Runcorn	23244	28216	29170	6211
Tarvin	12614	13187	13373	2867
Tintwistle	2105	2193	2193	551
Wirral	13905	19024	22378	3836

The largest intercensal increases of population are given in order—Ellesmere Port and Whitby, 6,091; Wirral Rural, 5,119; Runcorn Rural, 4,972; Hale Urban, 3,789; Hoyle and West Kirby, 3,118; Lower Bebington, 3,014; Bucklow Rural, 2,980; and Sale Urban, 2,958. The important part played by the Wirral Peninsula in the increase in population will readily be seen. The only serious decrease is in the Borough of Stalybridge, where the population at the Census of 1911 was 1,159 less than in 1901. The other decreases were Mottram (79), Tarporley (40), Bollington (20) and Buglawton (13).

Density of Population.

This is shewn in the first Table of Statistics given at the end of this Volume. In the six Municipal Boroughs it averages 11.09 persons per acre, in the 35 other Urban Districts 3.25 persons per acre and in the 12 Rural Districts 0.35 persons per acre. Taking the Administrative County as a whole it averages 0.97 persons per acre. The variation is of course considerable in different parts of the County. In Altrincham Urban District it is highest, namely, 27.56 persons per acre and this figure is followed by Crewe Municipal Borough (22.41), and Hoole Urban District (17.94). The lowest figures for density of population are found in Tintwistle Rural District (0.16), Macclesfield Rural District (0.21), Malpas Rural District (0.21), Tarvin Rural District (0.23) and Nantwich Rural District (0.25), whilst several of the other Rural Districts shew figures only very slightly higher.

Tenements.

The proportion of tenements with more than two occupants per room is shewn in the following Table:—

Tenements with more than two occupants per room : --

SANITARY DISTRICTS.	No. of such Tene- ments.	Population in such Tenements	Propor- tion per cent. to population in private families.
MUNICIPAL BOROUGH—			
Congleton	63	593	5.3
Crewe	187	1764	4.0
Dukinfield	129	1130	5.8
Hyde	161	1498	4.5
Macclesfield	125	1077	3.3
Stalybridge	155	1312	5.0
OTHER URBAN DISTRICTS—			
Alderley Edge	4	37	1.2
Alsager	3	23	0.8
Altrincham	73	638	3.6
Ashton-upon-Mersey	20	154	2.1
Higher Bebington	6	51	3.0
Lower Bebington	74	702	6.2
Bollington	28	281	5.4
Bowdon	2	22	0.8
Bredbury & Romiley	34	311	3.6
Bromborough	8	72	3.7
Buglawton	6	54	3.8
Cheadle & Gatley	26	236	2.7
Compstall	5	37	4.1
Ellesmere Port & Whitby	135	1167	11.5
Hale	4	47	0.6
Handforth	4	35	3.7
Hazel Grove & Bramhall	26	245	2.6
Hollingworth	14	120	4.7
Hoole	14	120	2.3
Hoylake & West Kirby	43	372	2.8
Knutsford	35	279	5.5
Lymm	27	223	4.5
Marple	23	215	3.3
Middlewich	36	302	6.3
Mottram	14	138	4.6
Nantwich	48	481	6.6
Neston & Parkgate	38	324	7.3
Northwich	175	1533	8.6
Runcorn	165	1404	8.2
Sale	45	404	2.7
Sandbach	25	227	4.1
Tarporley	15	120	4.6
Wilmslow	29	244	3.0
Winsford	87	772	7.2
Yeardsley-cum-Whaley	6	51	3.1
RURAL DISTRICTS—			
Bucklow	109	837	3.9
Chester	34	260	2.4
Congleton	74	630	5.1
Disley	10	89	3.0
Macclesfield	35	309	1.9
Malpas	17	137	3.0
Nantwich	86	744	3.0
Northwich	158	1377	6.0
Runcorn	197	1600	5.8
Tarvin	71	578	4.4
Tintwistle	8	74	3.4
Wirral	103	896	5.0

Section II.—Natural and Social Conditions of the Administrative County.

Most of the District Medical Officers of Health have given a short account of the natural and social conditions of their areas and I have pleasure in appending extracts from their Annual Report on these points.

According to Mr. Horace B. Woodward, F.R.S., F.G.S. (Stamford's Geological Atlas of Great Britain and Ireland), the greater part of Cheshire is a plain formed of new red rocks and covered with much boulder-clay and shelly drift gravel.

“In the western part of the County, as in the Wirral promontory, the Bunter sandstone and pebble-beds are overlain here and there by the Keuper sandstones. The latter are quarried for building-stone and noted for footprints of Labyrinthodonts at Storeton, about three miles south of Birkenhead. Keuper sandstones resting on the Bunter, constitute the chief water-bearing strata. Together they form the Peckforton Hills with Beeston Castle Hill and also the scarps of Alderley Edge, where galena, copper-ore and cobalt-ore have been found. The eastern part of the County is formed chiefly of the red Keuper marls with rock-salt and brine spings at Northwich, Winsford, Middlewich, Sandbach, Church Lawton and Nantwich. The salt has been mined, but most of it is obtained by the pumping of brine. At Northwich especially the mining and pumping have led to disastrous subsidences of the land; and some of the meres in the County are probably due to this cause. Rhætic beds and Lower Lias, much concealed by drift, occur near Audlem. Coal-measures appear in the east, at Macclesfield and Stockport, in a productive coal-field which forms a prolongation of that of South Lancashire. Traces of coal-measures also occur along the borders of the Dee Valley near Great Neston. East of Macclesfield and at Congleton Lower Carboniferous rocks form high moorlands with patches of shelly drift at heights up to 1250 feet. There are lime-works at Astbury, in the Carboniferous limestone on the borders of Congleton Edge. Carrington Moss in the valley of the Mersey has been found useful and profitable as a receptacle for the solid organic refuse of Manchester. There are tracts of blown sand at New Brighton, Hoylake and West Kirby. The coast at Leasowe Castle has suffered much from marine erosion.”

NATURAL AND SOCIAL CONDITIONS.

CREWE MUNICIPAL BOROUGH.—“The Borough is situated in the S.E. part of Cheshire upon the Valley Brook, a tributary of the River Weaver. The mean altitude is about 170 feet above sea level and varies from 113 feet at the lowest part of the sewage farm to 200 feet at Hightown. The borough has a total area of 2,185 acres, comprising the Civil Parish of Monks Coppenhall and parts of the Civil Parishes of Church Coppenhall, Shavington-cum-Gresty and Wistaston, the three last named parts being added on 24th March, 1894, by Order of the Local Government Board.”

DUKINFIELD MUNICIPAL BOROUGH.—“Dukinfield is situated on the left bank of the River Tame, a tributary of the Mersey. The north and west parts of the town are near the river, the east, the most elevated part of the district, being some considerable distance from it. The river is 279 feet above sea level, but at Hough Hill the height is about 700 feet. The centre of the town is fairly well populated, but other districts and more particularly the east, consist of farm land and open spaces, so that Dukinfield, although to a large extent a manufacturing town, is in part rural and finds employment for some milk farmers. The sub-soil is in some places a loamy clay and in others sandstone and the outcrop the Permian system. Underneath there are the coal measures. Although at the present moment no coal pits are working, for many years coal mining was a very important industry in the district.

“The chief occupations of the inhabitants are—cotton manufacture (both spinning and weaving), engineering, boiler making, electric accumulator works, soap works, dye works, rope manufacture, carriage and wagon works and one brewery. None of these industries are specially injurious to the health of the workers, who, as a rule, are a fairly healthy class of men and women. The rateable value of the town is £80,040 and the amount of Poor Law out-relief for the year was £529 19s. 4d.

“The District Infirmary, situated in the Borough of Ashton-under-Lyne, is well supported both by public and private charity and many of the poor avail themselves of the benefits to be obtained from this excellent institution. The local Sick-Nursing Institution is also supported by private charity and the nurses’ services are highly appreciated by the sick poor of the town. Two nurses are now employed in this deserving work.”

NATURAL AND SOCIAL CONDITIONS.

STALYBRIDGE MUNICIPAL BOROUGH.—“The chief industry of the town is cotton spinning and manufacturing, though numerous other industries are successfully carried on, such as iron and brass works, calico printing and bleach works, woollen mills and other minor industries, all under conditions not specially injurious to health. Several old factories and workshops which had been closed for some years have recently been re-opened and adapted for cotton, iron, or other industries and the trade of the town is in a flourishing condition. The Borough offers numerous advantages of a high commercial value, a river and a canal running through the town, an unequalled water supply and most excellent railway facilities, which give ready and direct access to all parts of the Kingdom and it seems to me that it only requires capital and enterprise to make Stalybridge one of the most progressive and prosperous hives of industry in the country.

“The people are on the whole well housed, though, as may be expected in an old town such as Stalybridge, there are many properties which must and are receiving attention under the Housing, Town Planning, &c., Act, 1909. During recent years it has become increasingly apparent that there was a need of better and more commodious houses for the working classes and that this need was not being met by private enterprise, although the Council were anxious to encourage as far as possible the erection of such dwellings. The more thorough and systematic house-to-house inspection of the Borough which devolved upon the officials from the Housing, Town Planning, &c., Act, revealed to them the urgent need of the erection of a number of houses with three bedrooms if they were to deal satisfactorily with cases of overcrowding and with the closing of insanitary dwellings and the relief of congested areas, apart from the provision of facilities for workers to reside in the Borough. Up to the present the Council have not deemed it prudent to enter upon a scheme for erecting municipal dwellings, but have waited rather in the hope that the demand would be met by private property owners.

“In September, however, the Local Government Board deputed H. H. Chapman, Esq., one of H.M. Inspectors of the Board, to visit the Borough, to confer with representatives of the Council and to inspect and report upon the housing conditions in the Borough. Mr. Chapman came down on September 23rd and, after a preliminary interview with the Council's representatives, spent that and the following day, along with the Sanitary Inspector and myself, in looking over

NATURAL AND SOCIAL CONDITIONS.

the greater part of the town and ascertaining the existing housing conditions which were prevailing amongst various classes of the community. Subsequently, he again, during the morning of September 25th, conferred with the Council's representatives prior to leaving and making his report to the Board."

ASHTON-UPON-MERSEY URBAN DISTRICT.—"The population of Ashton-upon-Mersey is mixed, chiefly agricultural; some of the inhabitants work in Manchester and its surroundings and reside in the country. The soil is earth, gravel and river detritus; clay is found at some depth."

HIGHER BEBINGTON URBAN DISTRICT.—"The population at the census of 1911 was 1,689 and is estimated to have been 1,775 at the middle of 1914. Agriculture is the staple industry and stone quarrying is an important source of employment. Working in this stone does not seem to be associated with respiratory trouble or other form of disease. Women in a number of instances find occupation in laundry work for households in the neighbouring Borough of Birkenhead. A small area of land is available for allotments and is utilised for this purpose.

"At the end of the year eleven persons were on the list of out-door poor, viz.: eight adults and three children. £1 4s. 0d. was the amount of weekly permanent relief distributed among these persons. In addition there are persons who from time to time come on to the Relieving Officer's books for temporary relief in times of sickness, &c. The average weekly amount paid is not included in the above sum. There were seventeen admissions from Higher Bebington into the Workhouse and Infirmary during 1914."

LOWER BEBINGTON URBAN DISTRICT.—"This district is constituted by three townships, viz., Lower Bebington, New Ferry and Port Sunlight. In the two latter the soil is clay, whilst in the former a thin layer of marl and clay are superimposed on the new red sandstone. Port Sunlight is laid out as a model village with wide roads and open spaces between the houses and both Lower Bebington and New Ferry possess public parks of wide extent. The town has, therefore, plenty of those 'lungs' which are so essential for the well-being of an urban community. The population at the census of 1911 was 11,412 and is estimated to have been 13,164 at the mid-year in 1914.

NATURAL AND SOCIAL CONDITIONS.

“To a certain extent the district is residential for business men who pursue their avocations in Liverpool. A large section of the population finds employment in the Soap-works of Messrs. Lever. On the 13th January, 1915, 39 adults (4 males and 35 females) and 21 children were on the permanent list of out-door poor and resident in your district, viz. :—

			Adults.		Children.
Bebington	...	...	10	...	6
New Ferry	...	...	27	...	13
Port Sunlight	...	...	2	...	2
			<hr/>		<hr/>
			39		21

“£7 6s. 6d. is shewn as the amount of weekly relief distributed among these persons. In addition to this temporary relief is granted in emergency cases as required. The admissions to the Workhouse and the Infirmary this year numbered 85.”

BOLLINGTON URBAN DISTRICT.—“The Urban District of Bollington comprises some 1,219 acres and is situated in a valley and on its adjacent hill sides on the westerly edge of the East Cheshire range of hills. It is distant about $3\frac{1}{2}$ miles in a north-easterly direction from the Borough of Macclesfield. It is also some 11 miles from the town of Stockport and 17 miles from the City of Manchester. The valley forms a natural cul-de-sac a little off the Manchester to Macclesfield main road. The district is a bracing and healthy one and has excellent sites for residential property on its hill sides. The character of the soil and sub-soil varies greatly. Speaking generally it is sandstone and clay with some coal measures. The staple industry of the place is the cotton trade. The village has three mills engaged in Fine Cotton Spinning, one in Cotton Weaving and another in Calico Printing, whilst just outside the boundaries is a large Calico Bleaching and Finishing Works. A Paper Staining firm too has works in the village. All these works find indoor employment for a large number of the inhabitants. Out-door employment is to be had in the stone quarries which abound in the neighbourhood and also in the fire-clay works and coal pits situate at Pott Shrigley, a little over a mile away. These different occupations which are followed by the inhabitants would appear to be of a healthy character. Mill life in a country district such as this is devoid of a great many of the more harmful influences associated with the same life in the larger

NATURAL AND SOCIAL CONDITIONS.

cities and towns. The amount of Poor Law relief distributed in the district is not high, being £295 15s. 3d. for the last year. Hospital and gratuitous medical relief are well provided for at the General Infirmary, Macclesfield, and advantage of this is taken chiefly by cases requiring operations or other institutional treatment."

BREDBURY AND ROMILEY URBAN DISTRICT.—"The physical features and general character of the district are hilly farm land, roughly divided into halves by one of the Pennine Range of Hills, about two-thirds of Bredbury, including Woodley and Brinnington, being on the north side of this hill and one-third of Bredbury, including Hatherlow and Romiley, including Chadkirk, on the south. The Peak Forest Canal runs through the district from Marple to Hyde and the River Goyt winds round the border of Romiley and part of Bredbury. There are several mills in both parts of the district, including large hatworks, several engineering works, a colliery, two brickworks and cotton mills. There is also a large incandescent-mantle works, employing a large number of girls. Employment at almost all these has been well maintained during the year, but during the war period the hatting and cotton trades have been very much depressed.

"From observations during the year and the difficulty experienced in finding accommodation for small families, I am of the opinion that there is a need of more good cottage houses, at rents from 5/- to 7/- per week. The general condition of the population is a well-to-do industrial one, with a number of small farmers and shop-keepers. There are many residents engaged in business in Manchester, Stockport and Hyde and the number of these has increased from year to year, new house property, built to accommodate them, having been quickly occupied. The artisan class does not appear to have been catered for and a great many who work here have to live in the neighbouring towns, journeying to and fro by the trams and trains.

"As an indication of the growth of the district the following census returns for the last 70 years is instructive:—

Census.	1841	1851	1861	1871	1881	1891	1901	1911
Bredbury	3301	2990	3408	3596	3733	3901	4691	5786
Romiley	1465	1364	1468	1804	1819	1920	2416	2898
Total	4766	4354	4876	5400	5552	5821	7107	8684

NATURAL AND SOCIAL CONDITIONS.

BROMBOROUGH URBAN DISTRICT.—“Bromborough is situated on the western bank of the River Mersey and on the main road from Chester to Birkenhead. The soil is loam over new red sandstone. The population at the census of 1911 was 1,974 and is estimated to have been 2,021 at the middle of 1914. The district is a residential one for Liverpool business men, but on the branch of the Mersey called Bromborough Pool an industrial population is established in connection with Price's Candle Works. These works find employment for over 650 men and boys and 60 women and girls. A portion of the factories of Messrs. Lever are in the district, the persons numbering 1,685 employed there, reside in Port Sunlight. The Mersey Chemical Works are situated in the district and have over 25 men in their works. The Knowle's Oxygen Company have 46 men.

“One person, an adult was on the list of out-door poor in December, 1914. The amount distributed weekly was 5/6. In addition to this temporary relief is given in urgent cases. The number of persons admitted from Bromborough to the Workhouse and Infirmary was six in 1914, seven in 1913, seven in 1912 and eight in 1911. Many of the working-classes avail themselves of medical relief afforded by the Liverpool Hospitals.”

CHEADLE AND GATLEY URBAN DISTRICT.—“This district is mainly agricultural and residential. The sub-soil is clay and gravel. There are two bleach-works and dye-works, one small engineering works and two steam laundries. The buildings connected with these works are well constructed and the health of the operatives good. There are three brick-yards in Cheadle Hulme and one in Gatley. In Cheadle Hulme handloom silk weaving is still carried on in some of the cottages but the industry is rapidly dying out. There are three large institutions in the district, viz.:—The Royal Lunatic Hospital, the Barnes Convalescent Hospital (a branch of the Manchester Royal Infirmary) and the Warehousemen and Clerks' Orphan Schools. The number of new houses built and occupied during the year was less than in 1913. Nearly all of them were small villa residences in the Cheadle Hulme South Ward.”

COMPSTALL URBAN DISTRICT.—“The district is chiefly rural and lies on the south and south-easterly portion of the Werneth Hills, in the north-east portion of the County of Chester, being separated from the Glossop Rural District, in the County of Derby, by the River Etherow. It is bounded

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on the north by the Borough of Hyde, on the west and south-west by the Romiley and Bredbury Urban District Council and on the east and south-east by the Glossop Rural District. The urban portion of the district lies at the lower border of the district on the south and south-easterly side. The sub-soil is a mixture of sand and clay, with underlying rock.

“The chief occupations of the inhabitants of the urban portion are weaving and spinning. The inhabitants of the rural portion are chiefly farmers and labourers. There is a fair amount of out-door relief to the old inhabitants. There are no cases, so far as I can gather, at present in the Union, nor are there any cases receiving gratuitous medical relief. The social conditions of the inhabitants are clean and healthy, with one or two exceptions. The mills have been working full time up to the commencement of the war. During the war they are only running half-time. There is, however, not much acute distress. Local relief is being given to one or two cases. There are no reports of overcrowding.”

ELLESMERE PORT URBAN DISTRICT.—“The Urban District of Ellesmere Port and Whitby lies on the southern shore of the Mersey, at the junction of the Manchester Ship and the Ellesmere Canals. The population at the census of 1911 was 10,366 and is estimated to have been 13,596 at the mid-year 1914. The population was 12,032, calculated from the number of houses on 13th December, 1913. The town is mainly industrial, built on the flat sandy shore of the Mersey and owing its existence to facilities for water carriage to manufacturing centres such as Wolverhampton, Birmingham, Manchester and the Midlands. Iron ore is brought from the north and forwarded to iron manufactories in Staffordshire. Large iron works for the making of galvanised iron constitute a staple industry of Ellesmere Port. These works employ over 3,000 men usually, but since the outbreak of the war have only worked part time and on two or three occasions were entirely closed down. Three large flour mills have been built, the owners having recognised the advantages offered by the position of your district for distributing their products. The Indigo Dye Works, mentioned in last year's report, are being carried on as usual under fresh management. A large Portland Cement Works has also been established and employs a number of men. One of the largest sources of employment is in the service of the Shropshire Union Railways & Canal Company; this has not been affected by the war. Agricultural pursuits are followed by the inhabitants of the portions of the Wirral

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and Chester Rural Areas which were included in your district in 1910.

“Thirty-five adults and forty-two children are on the last published list of out-door poor as in receipt of relief, to the amount of £9 6s. 6d. per week. The admissions to the Workhouse and Infirmary numbered 94 in 1914, 77 in 1913, 110 in 1912 and 90 in 1911. The Liverpool and Chester Hospitals are largely used by the workers, but the difficulty of reaching these places is very considerable, so that a Cottage Hospital would be of very marked service to the district.”

HANDFORTH URBAN DISTRICT.—“This district lies upon a sub-soil of sand and clay. It is situated between the Urban Districts of Cheadle and Gatley on the north and Wilmslow on the south. The population at the census of 1911 was 934; the estimated population to the middle of 1914 was 939. The chief occupations are bleaching and farm work. There is very little poor law relief.”

HAZEL GROVE AND BRAMHALL URBAN DISTRICT.—“The natural position of the district, situated at the foot of the Pennine Chain, about 300 feet above sea level, no doubt contributes to the general healthiness. The general condition of the population is a well-to-do industrial one, with a number of farmers and shopkeepers. There are many residents engaged in business in Manchester and Stockport; the number of these have increased from year to year and new house property built has been quickly occupied. The working-class are well provided for with house accommodation. There are no cellar dwellings nor back-to-back houses in the district and no cases of overcrowding have come to my knowledge. Nor are there any offensive trades in the district.”

HOLLINGWORTH URBAN DISTRICT.—“Hollingworth, situated in the eastern extremity of Cheshire, consists of a township lying at the foot of an extensive and very hilly country district, divided by the main road between Manchester and Sheffield. The neighbouring townships are Mottram on the Manchester side and Tintwistle on the Sheffield side. To the north the country district occupies the northern slope of the Longdendale Valley—to the south the River Etherow, at the foot of the valley, divides the two Counties of Cheshire and Derbyshire and, looking towards the north of Derbyshire, the summit of the Peak of Derbyshire is visible. The mean altitude of the main street of Hollingworth is 500 feet above

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sea level, the country district on the northern side rising to a maximum of 1,300 feet. The sub-soil in the immediate neighbourhood of the township is mostly clay, leading to sandstone rock. At an altitude above that of the main street the clay sub-soil in most parts disappears and the soil is found to be directly on rock. The result of this is that trees do not become rich in foliage and there is a marked absence of wild flowers and fruit. The prevailing east wind, which at times blows with great severity through the valley, is another factor which may also be partly responsible for this. The climate is very bracing. The inhabitants are for the most part cotton operatives engaged in both spinning and weaving. There are three cotton mills and one large bleaching concern within the rateable area and there is no other important industry calculated to affect the public health."

HOOLE URBAN DISTRICT.—"The Hoole Urban District comprises an area of 334 acres and is almost entirely residential in character. The population consists for the most part of railway employees, nurserymen, clerks, artisans, shop-assistants, commercial travellers and many persons who during the day are commercially or professionally engaged in Liverpool or Chester. There are no courts, or slum areas. Hospital and other forms of gratuitous medical relief are only used to a limited extent. During the year out-door relief under the Poor Law was given to ten men, thirty-seven women and forty-five children."

HOYLAKE AND WEST KIRBY URBAN DISTRICT.—"The district is situated on the estuary of the River Dee where it falls into the Irish Sea. A portion of West Kirby is built upon the slopes of Grange Hill, while the remainder, with Hoylake and Meols, lies along the flatter river bank and sea shore. Firm hard sand forms the soil and sub-soil overlaying clay in the level parts. New red sandstone constitutes Grange Hill.

"The County Council held an inquiry upon the application of the Local Authority of this district for the alteration of boundary. It is proposed to give up to the Wirral Rural District Council a small piece of land fronting the sea shore, which will be added to the township of Saughall Massie, in exchange for a piece of land which formerly formed part of the township of Grange. There is no great difference between the areas in size, population or rateable value.

"The population at the 1911 Census was 14,029 and is estimated to have been 15,113 at the middle of 1914. In

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the main the district is residential, with houses belonging to persons of leisure, or occupied in business in Liverpool.

“Hotel keeping and letting of furnished houses and apartments, as in other watering places, is the occupation of a number of the inhabitants. Building trades, the fishing industry, gardening, golfing and shop-keeping give employment to others. There is no particular occupation which could be considered as having a detrimental influence on public health.

“On December 11th, 1914, 80 persons, 45 of whom were children under 16 years of age, were in receipt of out-door relief. These were distributed as follows:—

		ADULTS.		CHILDREN.		TOTAL.
Hoylake ...	...	30	...	25	...	55
West Kirby	...	5	...	20	...	25
		—		—		—
Totals	..	35	..	45	...	80

“The number of persons on the permanent list and the weekly amount given to them in relief for each of the years 1911-1914 were as follows:—

	1911.	1912.	1913.	1914.
Numbers ...	81	72	81	80
Amount weekly	£8 7 6.	£8 5 0.	£10 9 6.	£12 7 4.

“In addition, temporary relief is given each week in urgent cases of sickness and distress. The admissions to the Workhouse and Infirmary in the same years are shown below:

1911.	1912.	1913.	1914.
19	44	38	42

LYMM URBAN DISTRICT.—“The Urban District of Lymm forms part of the northern boundary of the County of Chester and divides that County from Lancashire. It lies five miles eastwards from Warrington. The district consists of a central village with residential and agricultural surroundings. The central portion is surrounded by plain lands, low lying on the north, west and east, but keeping a higher level in a southern direction. The lowest part of the district is around the sewage farm in Statham and the height is there 27 feet above sea level (high-water mark at Liverpool, ordnance datum); the highest point near Broom Edge is 190 feet above

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the same ordnance datum. The population is made up of a residential portion occupied at Manchester (13 miles away) and at Warrington; of shop-keepers, local artisans and operatives (fustian cutters), of artisans and operatives living in the district and working outside it (a few) and finally of an agricultural portion. Within the last nine years a new industry—salt manufacture—has been introduced, which at present occupies about a hundred males. Last year a second salt works was established. During the last quarter of the year the population has been increased by an average of 15 wounded and convalescent British soldiers at the Red Cross Hospital and by about 120 Belgian refugees at Oughtrington Hall and Beechwood, consisting of men, women and children.”

MARPLE URBAN DISTRICT.—“The village of Marple is built on the slope of a hill, with a west and north-west gradient. The district is a hilly one, intersected by valleys and with the River Goyt winding round the north and north-west borders. It is well wooded and naturally drained. The height above sea level varies from 450 to 633 feet. The lower parts of the district are humid and damp, owing to nearness of the river and insufficient fall and mists rising from the same make it unhealthy. The sub-soil is chiefly clay, with faults of sand and marl. The district is partly manufacturing, partly agricultural and partly residential. The residential portion consists of fairly large properly tenanted and owned by people with businesses in the adjacent towns of Manchester, Stockport, Hyde, &c. There are three large mills and a few small works. The chief industry is cotton spinning and manufacturing. The cottages, as a rule, are healthy, roomy and well ventilated. Several new cottages have been built in Hawk Green, but there is still a demand for good small houses, as in one or two places the property is very dilapidated. There are very few poor in the district and all Poor Law cases that have to be removed go to Stepping Hill Hospital, Stockport.”

MIDDLEWICH URBAN DISTRICT.—“The chief occupations of the inhabitants are at the chemical and salt works and the milk factory, also agricultural labour. The occupations of the inhabitants are not prejudicial to their health. The amount of out-door Poor Law relief is about £8 weekly. The Guardians subscribe to all the required Hospitals and Sanatoria which are made good use of.”

MOTTRAM URBAN DISTRICT.—“The district roughly extends from Roe Cross to Best Hill Bridge north and south and

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from the foot of Mottram Moor to the Brook on Hyde Road east and west, with the village of Mottram, situated 600 feet above the sea level as its centre and from which the other portion of the district falls away. The sub-soil is chiefly composed of clay, with underlying rock. The inhabitants of the district are chiefly engaged in the cotton industry. The chief occupations of the inhabitants are cotton manufacturing—bleaching, calico printing, tape making. There is one large cotton mill in the district, situated in Broadbottom. The health of the inhabitants during the year has been remarkably good. I attribute this to the works being on short time and the people able to be more in the fresh air. There is no real poverty in the district."

NANTWICH URBAN DISTRICT.—"Situate in the south-west corner of the County of Cheshire, Nantwich is a town of considerable antiquity. It has many natural advantages, its climate is equable, pure, mild and dry and the geological formation met with consists of red marl. The brine baths are situated on the outskirts of the town and a large number of patients are treated annually, suffering from rheumatism, gout, sciatica, neuritis, &c. The rateable value of the district is £27,076 16s. 0d. and its assessable value is returned as £24,272 15s. 10d."

NESTON AND PARKGATE URBAN DISTRICT.—"The Urban District of Neston and Parkgate lies in the south-west portion of the Wirral Peninsula on the banks of the River Dee. It comprises three townships, Great Neston, Little Neston and Parkgate, situated at distances of about a mile from each other. The geological formation underlying the entire area is new red sandstone. The coal measures are reached at Little Neston and a pit has been worked there for many years. Here and there pockets of clay overlie the sandstone, but the soil and sub-soil are both usually of a sandy character. The population at the Census (1911) was 4,596 and is estimated to have been 4,854 at midsummer (1914). This estimation is based on the assumption that the population is increasing at the same rate as it did in the intercensal period between 1901 and 1911, when the increase was 442. The occupations of the inhabitants may be roughly classified according to the townships, as fishing at Parkgate, building trades and artisans in Great Neston and coal mining at Little Neston. Modern machinery was introduced into the Wirral Colliery Works in 1912 and resulted in a considerable revival in the welfare of the colliers. In all parts of the district many of

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the inhabitants are engaged in agricultural pursuits. A Steam Laundry is established at Parkgate, which employs a large number of hands. The number of out-door poor in receipt of relief in the first week of December in each of the years 1911 to 1914 may be seen from the following table. In addition to which a large amount of temporary relief is given each week to persons in distress owing to sickness and other causes:—

	Adult Males.	Adult Females.	Children (both sexes).	Total. Amount of Relief.
1911	5	26	11	42—£5 7s. 0d.
1912	7	28	10	44—£7 5s. 0d.
1913	8	23	12	43—£6 10s. 6d.
1914	7	25	12	44—£7 2s. 6d.

“The admissions to the Workhouse and the Infirmary in the same years were 40, 56, 46 and 39 respectively. Extensive use is at all times made by the Working-classes of the Hospital Institutions of Liverpool and Chester, but considerable difficulty is often experienced in meeting the charges for treatment, so that there is urgent need for a Cottage Hospital, which would obviate the necessity for the journeying of patients to the neighbouring towns.”

NORTHWICH URBAN DISTRICT.—“The Urban District and Township of Northwich now includes what were formerly the Parishes of Witton-cum-Twambrooks, Northwich and Castle Northwich and parts of the parishes of Hartford, Leftwich and Winnington and its population estimated to the middle of 1914 is 18,900. The town proper is very low lying and is intersected by the River Weaver and its tributary the Dane. A considerable portion of the town is not more than 50 feet above sea level. The principal industries are chemical and salt manufactures, with some ship-building and iron foundries. As a market town it serves some proportion of the surrounding agricultural area. Subsidence, caused by the pumping of brine, is a source of great sanitary inconvenience, as it cracks floors and pavements, alters the fall of channels and sewers and causes them to sag.”

RUNCORN URBAN DISTRICT.—“Runcorn is an Urban District situated on the left or south bank of the Estuary of the River Mersey, on ground rising from the river's edge slightly in directions east and west and towards the south to Runcorn Hill at a height of 256 feet above ordnance datum. The town is built on red sandstone, with pockets of boulder clay.

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"The area of the district is 1,275 acres, including about 100 acres water surface. The prevailing winds are south-west and the rainfall is considerable. The inhabitants are mainly of the industrial class, employed in local chemical, tanning and other works; some within the Urban District, others in the adjacent portions of the Rural District. The navigation of the river and canals provide employment for a considerable 'floating population,' while a large number of young adolescents, chiefly females, find employment at works in the area of the Rural District. The gross rateable value of the Urban District is £61,142; a rate of 1d. in the £ produces £208."

SANDBACH URBAN DISTRICT.—"Sandbach is a very healthy town chiefly built on sandy soil with a small proportion of clay. It had a population at the last census of 5,723 and its area is 2,693 acres. The chief industries are engineering and the manufacture of chemicals both of which are at the present time extremely flourishing. There are also silk mills, fustian, clothing and boot factories. A large proportion of the area is agricultural. The majority of the cases necessitating surgical interference are sent to the various Hospitals in Manchester, such as the Royal Infirmary, the Eye Hospital, St. Mary's and Pendlebury and the arrangements made work very well. There is a large Hospital of 80 beds at Arclid belonging to the Congleton Board of Guardians where the poorer classes may be sent, also cases of accident occurring in the district when it is not advisable or it is impossible to send them home. All cases of scarlet fever, diphtheria and typhoid may be sent to the West Heath, Congleton Hospital, where there are 30 beds, 16 for scarlet fever, eight for diphtheria and six for observation cases. For small-pox there is at Arclid a Hospital always in working order and in charge of a caretaker with his wife. It contains ten beds, five being for each sex. All the cases of this class endangering the public health are sent to one or other of these hospitals. The houses afterwards are disinfected and all bedding is sent to the Congleton Hospital to be stoved."

WILMSLOW URBAN DISTRICT.—"This district is situated in the County of Chester, about ten miles south of Manchester. The London and North Western Railway from Manchester to Crewe runs through it. It forms part of the Cheshire plain and is traversed by the valley of the River Bollin. Its area comprises 4,969 acres. The sub-soil is chiefly sand and clay. On Lindow Common and in its neighbourhood there is peat.

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The district is partly suburban and partly rural in character. The population was 8,153 at the census of 1911, as against 7,361 in 1901, being an increase of 792, or 10.7 per cent. Between 1891 and 1901 the increase was 14.4 per cent. The population was estimated to be 8,400 in 1914. A considerable part of the population is residential, chiefly composed of persons engaged in business is Manchester, with their families. There are no large manufactories in the district. Some of the inhabitants work at a cotton mill at Styal and some at a bleach works at Handforth: places just outside the district. Many are employed in the ordinary local trades, whilst others are occupied with agriculture. As a rule there is not much unemployment. Persons in receipt of poor relief are mostly aged and past work. There is no hospital in the district. The inhabitants make use of the hospitals in Manchester and Stockport, to which the Council are subscribers."

DISLEY RURAL DISTRICT.—"The elevation of the district varies from 340 feet (ordnance datum) at the river level to nearly 1,200 feet (ordnance datum) on the hill tops. The main road is 600 feet. The sub-soil is generally clay, overlying the gritstone.

Population, Census, 1901.	Census, 1911.	Population estimated to the middle of the year 1914.
2,827	2,958	3,002

"Inhabited houses: Disley, 683; Furness Vale, 125. New houses erected during the year, 13. The chief occupations of the inhabitants are agricultural and textile. The amount of Poor Law relief during the year was £134 12s. 4d."

MACCLESFIELD RURAL DISTRICT.—"The Rural District of Macclesfield is situated in the east of the County of Chester and adjoins Derbyshire on the east and Staffordshire on the south-east and south. It consists of 79,495 acres and surrounds the Borough of Macclesfield and the Urban District of Bollington, its diameter being about 15 miles. It is largely drained by the Rivers Bollin and Dean which run through it in a northerly direction and by the Goyt and the Dane which respectively form part of the eastern and the southern boundaries. The district is divided naturally into a hilly eastern portion and a lowland western portion, this division corresponding with a geological 'fault' running almost directly north and south through the district in a line indicated fairly accurately by the direction taken by the Great Central and the North Stafford Railways. East of this fracture, the physical

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features contrast very strongly with those on the western aspect. On the eastern side are lofty hills rising nearly 1,600 feet above the sea level and in many parts consisting of barren moorlands suitable only for grazing; while on the west the district is well wooded and capable of being highly cultivated. The London and North Western, the North Stafford and the Great Central Railways traverse the district, as also does the Macclesfield Canal.

“The population of the district at the last census of 1911 was 16,629 and the estimated population to the middle of 1914 is 16,929, the great majority of whom are engaged in dairy farming. The larger portion of the milk produced is supplied to the neighbouring towns and to Manchester, while the remainder is manufactured into Cheshire cheese. The other principal industries are quarrying, coal-mining and silk printing. Some of the male inhabitants find employment in adjacent districts as calico printers and cotton spinners, a few of the women being engaged in felt hat trimming and the making of blouses and shirts. It cannot be said that any of these occupations has any effect upon the health of those employed.”

NANTWICH RURAL DISTRICT.—“This district is situated in the south-east of Cheshire and adjoins in the south the County of Salop and in the east the County of Stafford. It is part of the alluvial plain of Cheshire, its sub-soil being largely the red marl. It surrounds the Borough of Crewe and the Urban District of Nantwich, both of which districts are situated near its centre. The diameter of the district is about sixteen miles. The occupation of the vast majority of the residents is that of dairy-farming. The greater part of the milk produced is manufactured into Cheshire cheese, but large quantities of milk are supplied to the neighbouring towns, to the large centres of population in Lancashire and to London. In that part of the district contiguous to the towns of Crewe and Nantwich there is a considerable population of a non-agricultural character, which population chiefly consists of railway employes and of trades-people and their employes, whose daily occupation is chiefly found in the towns of Crewe and Nantwich. The wives and daughters of the poorer members of this class are to some extent employed in the clothing factories of Crewe, Nantwich and Willaston and a small number are employed as out-workers in this class of business. Of the four sub-districts into which the district is divided, the Crewe sub-district contains practically all the non-agricul-

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tural population, though even here the preponderating element is agricultural, whilst the sub-districts of Nantwich, Bunbury and Wrenbury are practically exclusively agricultural in character. Agriculture in this district is in a prosperous condition and the wages of agricultural labourers compare favourably with those of other parts of England.

“The district is drained by the River Weaver, which is a tributary of the Mersey and which receives tributary streams from the Counties of Salop and Stafford. The London and North Western, the Great Western and the North Stafford Railways run through the district, as also does the Shropshire Union Canal. The water main of the Liverpool Corporation runs through the district, as also does the London and North Western Railway Co.’s main, which supplies the Borough of Crewe. These mains are largely made use of for the supply of water to the Rural District.”

NORTHWICH RURAL DISTRICT.—“This Rural District, the principal industry of which is dairy farming, is intersected by the River Weaver and its tributary the Dane. It entirely surrounds the three Urban Districts of Northwich, Middlewich and Winsford. In the vicinity of these towns are chemical and salt works employing many hands and creating villages of a semi-urban character.”

TINTWISTLE RURAL DISTRICT.—“This district is divided into three portions—Tintwistle, Hattersley and Matley. Tintwistle portion extends from just below Saltersbrook to Millbrook Brow, Hollingworth, east and west and from the Manchester Reservoirs across the moors to Carbrook north and south. The Hattersley portion is surrounded by Mottram on the south-east, Borough of Hyde on the north-west and Matley on the north-east. Matley adjoins Stalybridge Borough on the north, Mottram and Hollingworth on the south and south-east and Hattersley on the west. The sub-soil is chiefly composed of clay, with underlying rock. The chief occupations of the inhabitants are manufacturing cotton goods and bleaching.”

WIRRAL RURAL DISTRICT.—“The Wirral Rural District comprises the greater portion of the Peninsula of Wirral, lying between the Mersey and the Dee. The underlying geological formation throughout its entirety is new red sandstone and most of the soil and sub-soil overlying this is clayey or sandy loam. The population at the census of 1911 was 19,022 and is estimated to have been 22,378 at the middle of

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1914. Generally speaking the inhabitants may be divided into two classes: (1) those whose occupations are agricultural; (2) those who are associated with business in Liverpool and other towns. The latter class has been steadily increasing during the last few years and some parts of the district have developed into residential centres, losing their rural character to a very large extent. Agriculturists here, as a class, may be described as prosperous, when compared with the same class in other parts of England; proximity to the markets of Liverpool, Birkenhead and Chester facilitating disposal of the produce. Many members of the farming community devote themselves almost entirely to feeding dairy cattle and forwarding milk to the towns above-mentioned."

Section III.—Births and Deaths.

Births.

There were 13,019 births registered in the Administrative County during 1914, namely, 3,819 in the six Municipal Boroughs, 5,476 in the 35 other Urban Districts and 3,724 in the 12 Rural Districts.

The birth-rate per thousand living in the Administrative County was therefore, 20.91 for the year 1914. In the whole of England and Wales this rate was 23.8 per thousand living. in the Rural Districts of England and Wales 22.2, in the 97 great towns 25.0 and in the 145 smaller towns 23.9. In Cheshire the birth-rate varied from 22.07 in the six Municipal Boroughs to 21.15 in the 35 other Urban Districts and 19.6 in the 12 Rural Districts. Ellesmere Port and Whitby Urban District showed a high rate of 36.4 and the rate varied in other parts of the County from 29.8 in Buglawton Urban District, 28.8 in Congleton Borough and 26.4 in Hoole Urban District, down to 7.3 in Bowdon Urban District, 9.0 in Compstall Urban District, 12.1 in Mottram Urban District and 14.7 in Hale Urban District.

The birth-rates were again lower in what may be termed the better-class residential districts than in the poorer-class districts and in the working parts of manufacturing towns. The following may be taken as examples:—

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Better-class Districts.			Birth-rate.
Bowdon	7.3
Alderley Edge	16.2
Marple	17.4
Wilmslow	..	...	15.4
Hale	...	...	14.7
Hoylake-cum-West Kirby		...	17.6
Working-class Districts.			
Ellesmere Port and Whitby U.D.	..		36.4
Buglawton U.D.	...	...	29.8
Congleton M.B.	...	...	28.8
Lower Bebington U.D.	...	...	25.8
Runcorn U.D.	...	...	25.3
Dukinfield M.B.	...	...	25.3
Winsford U.D.	...	...	24.9

The almost continuous decline in the County birth-rate since the period when correct figures first became available is shewn on the accompanying diagram.

In England and Wales the decline is apparent from the following figures:—

			Birth-rate per 1000.
1881—1885	...	...	33.5
1886—1890	...	...	31.4
1891—1895	...	...	30.5
1896—1900	...	...	29.3
1901—1905	...	...	28.1
1906	...	..	27.1
1907	...	...	26.3
1908	..	...	26.5
1909	...	...	25.6
1910	...	...	24.8
1911	...	...	24.4
1912	..	...	23.8
1913	...	...	23.9
1914	...	...	23.8

The Registrar-General in his Seventy-sixth Annual Report examines closely the causes of this decline in the country's birth-rate. As will be seen the causes which appear to be operating towards this end are:—

1. A decrease in the proportion of women of fertile or conceptive age who are married.

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2. The increasing average age of married women under the age of 45 years. In this connection it will, of course, be remembered that female fertility decreases with age.
3. The deliberate restriction of child-bearing.

In the year 1876 the birth-rate in this country attained the highest point on record, viz., 36.3 per 1,000 living, since which date the ratio has, with a few insignificant exceptions, fallen year by year.

“The birth-rate, stated in terms of total population (crude birth-rate), must obviously vary considerably with the proportion of females of conceptive ages in the population and with the proportion of these married.

“The following statement shows the changes in these proportions and in the age constitution of the married female population at the last five censuses :—

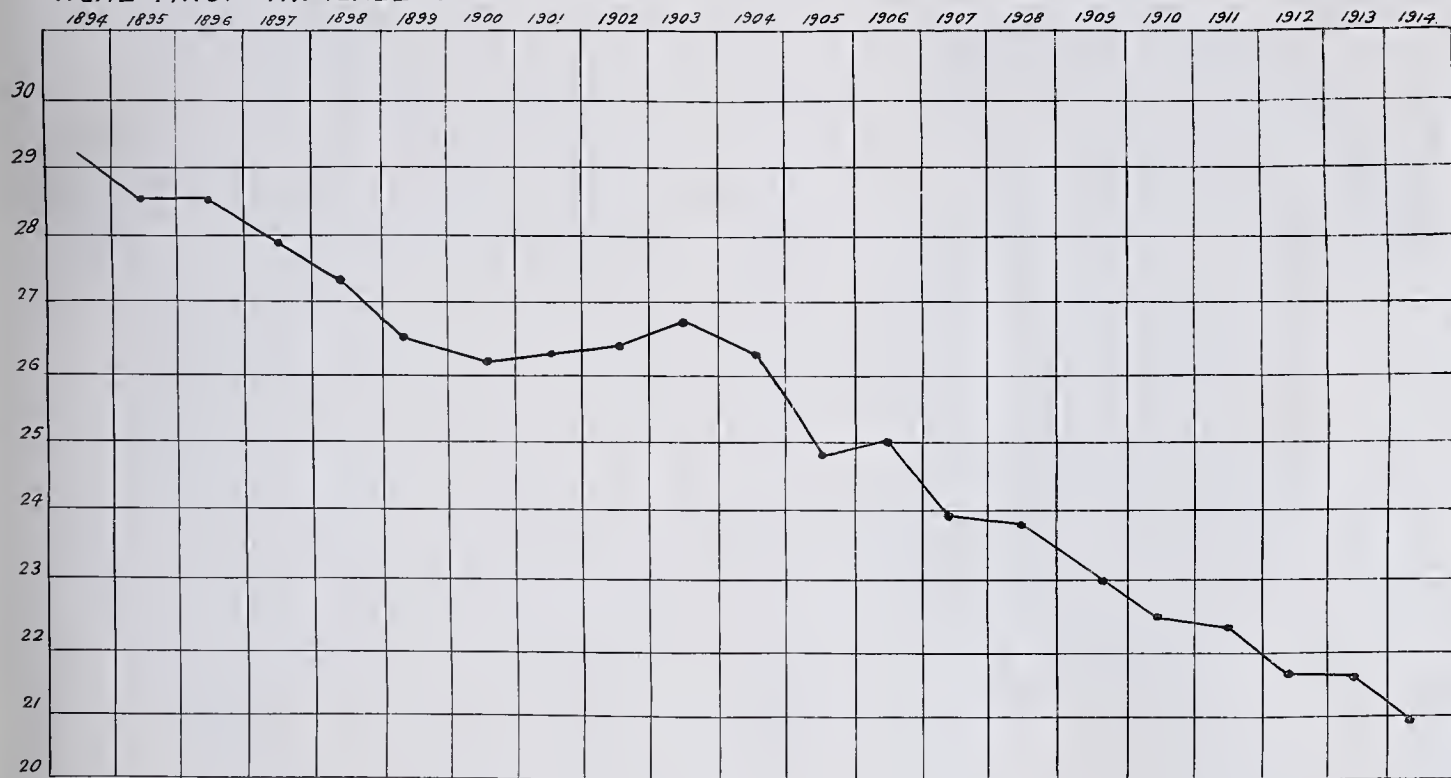
TABLE VIII.—ENGLAND AND WALES.

Census Years.	Proportion per cent. of Women aged 15-45 years in the Total Population of both sexes and all ages.	Proportion per cent. of Married Women in the Female Population aged 15-45 years.	Of the Married Women aged 15-45 years, the proportion per cent. at four groups of ages.				Persons Married per 1,000 Marriage- able Persons* in the Popula- tion.
			15-20.	20-25.	25-35.	35-45.	
1871	23·1	49·6	1·3	13·9	45·5	39·3	56·9
1881	23·1	49·1	1·1	13·7	45·6	39·6	51·1
1891	23·8	47·1	0·9	12·8	46·0	40·3	49·8
1901	25·0	46·8	0·7	11·8	46·8	40·7	48·6
1911	24·9	47·7	0·5	9·4	46·0	44·1	46·2

* *i.e.*, unmarried and widowed persons over 15 years of age.

“There are three changes recorded in this table which influence the birth-rate, one making for its increase and two for its decrease. The first of these is the increased proportion of women of child-bearing age in the total population, which is a direct consequence of the fall in the birth-rate which has already

DIAGRAM SHEWING BIRTH RATE IN CHESHIRE SINCE DATE WHEN CORRECT RECORDS
WERE FIRST AVAILABLE.



occurred. Up to 1901 this fall affected the population mainly in the direction of a decreased number of children and so the proportion of young women to total population increased. Since 1901, however, another effect of the falling birth-rate has come more into evidence in the form of an increase in the proportion of old people in the population. This has, so far as Table VIII. is concerned, offset the continued decrease in the proportion of children and a complete arrest of the previous increase in the proportion of women of fertile age has resulted. There remains, however, a considerably increased proportion of these women as compared with the period when the birth-rate commenced to fall, a fact which, of course, had other factors remained unchanged, would have led to a rise.

“The second change referred to is the proportion of women of fertile age who are married. This change to some extent helps to account for the fall in the birth-rate as compared with 1876, but as the proportion married has risen since 1901 this factor has tended to lessen the fall since that date, a period during which it has been particularly rapid.

“The third change is the increasing average age of married women under 45 years old. This appears to have been continuous throughout the period dealt with and must have contributed to the recorded fall in the birth-rate, since female fertility decreases with age. As, however, in the absence of any statement of the age of parents in our birth registers, there are no available records of the fertility of women of different ages in England, it is impossible to determine exactly the effect upon the birth-rate of this increase in the age of potential mothers. In any case it can account for but a small fraction of the fall which has occurred.

“From Table VIII. it is easy to calculate the effect of the first two factors dealt with. Thus, the increase in proportion of women of conceptive age from 231 to 249 per 1,000 total population would, had other factors remained unchanged, have raised the birth-rate in like proportion, from the 35.35 recorded in 1876-80 to 38.10 or, measuring the increase more precisely, to 38.21 per 1,000 total population, an increase of 2.86 per 1,000. After eliminating in this way the effects of the two factors referred to as influencing the proportionate number of women, married and unmarried respectively, of fertile ages in the community, the net fall in the birth-rate of the present day must be due to a diminution in the fertility of these women from whatever cause, including that resulting from increase in their average age. The effects of these changes upon the total, legitimate and illegitimate birth-rates, are set forth in the subjoined table.

BIRTHS—DEATHS.

TABLE IX.—ENGLAND AND WALES. THE EFFECTS OF VARIOUS FACTORS INFLUENCING THE FALL OF THE BIRTH-RATE, 1876-80 TO 1913.

	Birth-rate per 1,000 total population.		
	Total.	Legitimate.	Illegitimate.
Potential effect of increased proportion of women aged 15-45 in the population	+ 2·86	+ 2·72	+ 0·14
Potential effect of decreased proportion of married to total women aged 15-45	— 1·10	— 1·16	+ 0·06
Effect of diminished fertility ...	— 13·22	— 12·37	— 0·85
Recorded fall 1876-80 to 1913 ...	— 11·46	— 10·81	— 0·65

“It will be understood that when a potential rise is spoken of what is meant is that if the factor referred to had been the only one whose influence was altered the rise in question would have occurred.

“It will be seen that the effect of decrease in fertility of married women—due in some measure to their greater average age, but largely no doubt to deliberate restriction of child-bearing—is masked to some extent by the net result of the other changes noted in the constitution of the population, so that these cannot be appealed to as helping to explain the fall in the birth-rate.”

Deaths.

The total number of deaths during 1914 in the Administrative County numbered 7,816, namely, 2,578 in the six Municipal Boroughs, 3,092 in the 35 other Urban Districts and 2,146 in the 12 Rural Districts. The death-rate for the County, as a whole, was 12·55 per thousand living. The comparative figures for the rest of the country were:—

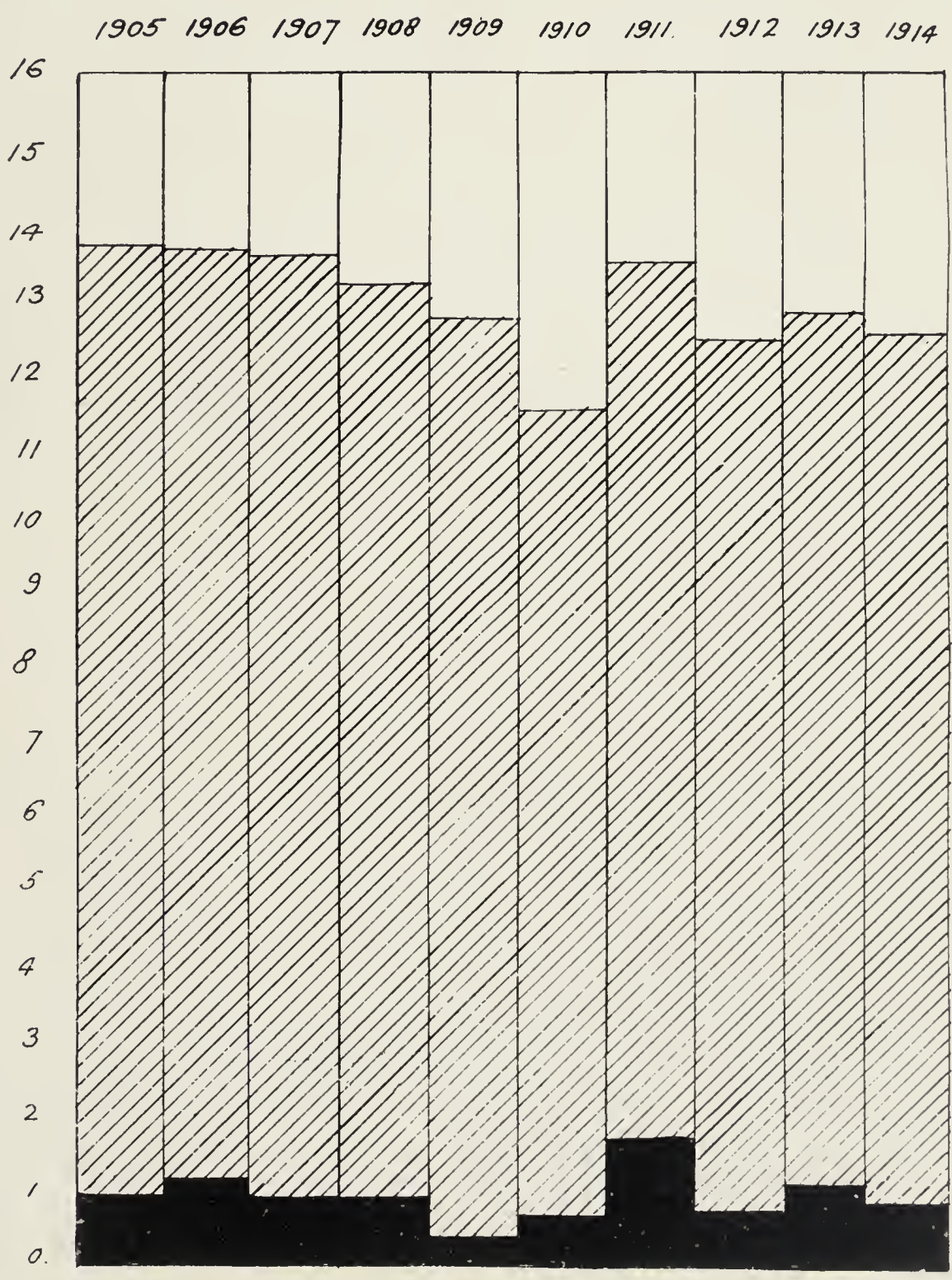
England and Wales ...	... 13·7
97 Great Towns ...	.. 15·0
145 Smaller Towns ...	... 12·1
Rural Districts ...	... 12·4

In the six Municipal Boroughs of Cheshire taken together the death-rate was 14·9, in the 35 other Urban Districts 11·94 and in the 12 Rural Districts 11·3.

The death-rates varied considerably in the different districts.

GENERAL DEATH RATE (ALL CAUSES) & ZYMOTIC DEATH RATE IN CHESHIRE 1905-1914.

GENERAL DEATH RATE  ZYMOTIC DEATH RATE 



DEATHS—INFANTILE MORTALITY.

The highest rates are recorded in the following districts:

Stalybridge M.B.	...	...	20.6
Dukinfield M.B.	...	...	17.3
Runcorn R.D.	...	...	17.2
Malpas R.D.	..	...	17.2
Runcorn U.D.	...	...	17.0

The lowest rates are recorded in the following districts:

Alderley Edge U.D.	...	...	7.8
Bromborough U.D.	...	...	7.9
Hale U.D.	...	...	8.8
Cheadle and Gatley U.D.	...	...	9.1

The death-rate is a very little lower than it was during 1912. This is due, in my opinion, to the decreased infantile and zymotic mortality. I give the death-rates in the County area for the past fourteen years.

DEATH-RATES PER 1,000 LIVING.

Year.		Cheshire.		England and Wales.
1914	...	12.55	...	13.7
1913	..	12.82	...	13.4
1912	...	12.52	...	13.3
1911	...	13.75	...	14.6
1910	...	11.75	...	13.4
1909	...	12.7	...	14.5
1908	...	13.1	...	14.7
1907	...	13.6	...	15.0
1906	...	13.7	...	15.4
1905	...	13.8	...	15.2
1904	...	15.7	...	16.2
1903	...	14.1	..	15.4
1902	...	14.6	...	16.2
1901	...	15.6	...	16.9

Infantile Mortality.

In the Administrative County as a whole, the deaths of infants under one year of age numbered 1,225, equal to a rate per thousand registered births of 94. In England and Wales the comparative figure was 105, in the 97 great towns 114, in the 145 smaller towns 104 and in the Rural Districts 93. The figure for the Administrative County of Cheshire is thus a fairly favourable one. In the six Municipal Boroughs of Cheshire the rates recorded averaged 123, as compared with 85 in the 35 other Urban Districts and 76 in the 12 Rural Districts.

INFANTILE MORTALITY.

In the following districts infantile mortality ruled high:—

Stalybridge M.B.	...	...	204
Dukinfield M.B.	...	...	149
Malpas R.D.	...	...	142
Runcorn U.D.	...	...	139
Tintwistle R.D.	...	...	136
Mottram U.D.	...	...	135
Northwich U.D.	...	...	130

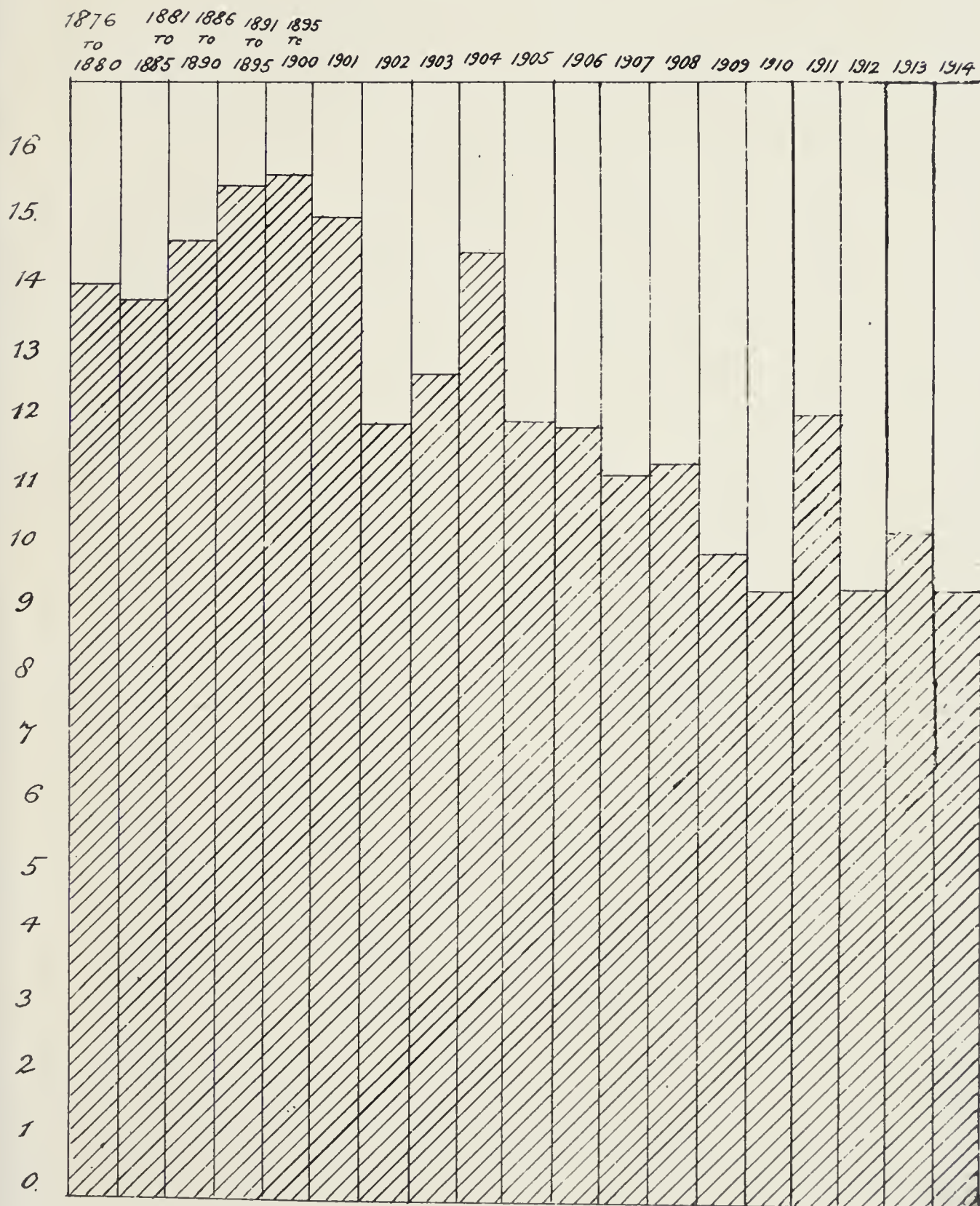
No deaths of infants were recorded in the Urban Districts of Alderley Edge, Bowdon, Bromborough and Handforth. The infant mortality rates were very low ones in the following areas:—

Ashton-upon-Mersey U.D.	..	...	11
Tarporley U.D.	...	...	14
Higher Bebington U.D.	...	...	25
Yeardsley-cum-Whaley U.D.	...	...	34
Chester R.D.	...	...	40
Macclesfield R.D.	...	...	41
Lymm U.D.	..	...	46
Bollington U.D.	...	...	50
Neston and Parkgate U.D.	.	...	51
Cheadle and Gatley U.D.	...	...	53
Hoole U D.	..	...	55

It is interesting to note the infant mortality figures over a period of years for some of those districts where it usually rules rather high. Take the Municipal Boroughs first and observe the infant death-rate for the past ten years.

Year.	Congleton.	Crewe.	Dukinfield.	Hyde.	Macclesfield.	Stalybridge.
1902	129	131	184	186	102	176
1903	94	145	194	173	134	190
1904	190	160	198	198	178	210
1905	184	131	196	191	149	177
1906	112	118	176	153	123	206
1907	127	108	221	169	120	248
1908	129	103	214	169	137	219
1909	107	104	157	147	110	146
1910	118	103	163	141	103	166
1911	195	162	206	189	151	172
1912	106	82	145	112	115	137
1913	130	103	139	152	116	147
1914	81	89	149	122	107	204

INFANTILE MORTALITY IN CHESHIRE, FROM 1876 TO PRESENT DATE.



Dukinfield, Hyde and Stalybridge are thus seen to stand out as places in which the infant mortality rate has ruled high for some years.

The infantile mortality as it has been recorded in some of the working-class districts is given below.

Year.	Altrincham.	Ellesmere Port.	Hoole.	Northwich.	Runcorn.	Sandbach.	Winsford
1902	133	126	74	130	140	80	126
1903	139	135	112	149	156	106	119
1904	183	109	188	162	203	147	134
1905	116	126	94	115	120	111	115
1906	117	133	106	140	157	85	166
1907	115	112	98	121	119	87	104
1908	148	116	93	157	119	111	156
1909	96	140	69	101	156	79	115
1910	103	84	109	112	139	56	84
1911	173	153	49	180	90	166	147
1912	87	101	93	89	115	83	102
1913	110	99	90	137	109	89	145
1914	79	123	55	130	139	81	104

The Urban Districts of Ellesmere Port and Whitby, Northwich, Runcorn and Winsford are thus shewn to be areas where infantile mortality is unquestionably higher than it need be.

It is to be sincerely hoped that the direct attack on the chief causes of this heavy mortality which is now planned and approved by your Committee* will in a few years effect a reduction in this serious toll levied on infant life.

This scheme is drafted on the lines suggested by the Local Government Board. A more comprehensive scheme was very carefully considered by your Committee but largely owing to the exigencies of the times it was decided to make a beginning with a smaller scheme.

A.—NOTIFICATION OF BIRTHS ACT.

1.—ANTE-NATAL.—Obtaining from midwives, medical practitioners, voluntary organisations and other agencies the

* *Note.*—Since the writing of this Report the coming into operation of this scheme has been postponed by the Council until the effect of certain promised legislation on the matter can be seen.

INFANTILE MORTALITY.

names and addresses of pregnant women where visitation and the giving of advice and assistance would in the opinion of the practitioner concerned or other responsible person be beneficial.

Special Note.—*The greatest care will have to be exercised here and professional confidence and etiquette will need to be most carefully observed. Under no circumstances must any pressure be used to obtain such information and no effort must be spared in preserving its confidential nature.*

Visiting, advising and assisting such women in such matters as:—

Conditions which may affect injuriously the progress of the confinement:

Feeding, clothing and the hygiene of daily life:

The preparation of suitable clothing for the infant:

The care of the mother's general health (teeth, breasts, bowels, &c.):

The general sanitation and cleanliness of the home:

Arranging for attendance of the mother at any school for mothers, maternity centre, etc., which may be ultimately established.

Note.—In all cases where medical attention appears to be required the attention of the patient's medical practitioner will be drawn to this by the Lady Assistant Medical Officer.

2.—NATAL.—Visitation of births notified except in cases where the medical practitioner in attendance states that visitation is not required—advising the mother as to the feeding of her infant and herself and on general infant management: making a note of any obvious sanitary defect for the County Medical Officer of Health, who will communicate with the District Medical Officer of Health thereon: inquiry into cases of Ophthalmia Neonatorum: inspection of the midwife in attendance and her appliances, home, &c.

3.—POST-NATAL.—Visitation of mother and infant as under the previous heading (Natal).

Arranging for the attendance of the mother and infant at schools for mothers, maternity centres, infant consultations, &c.

Inquiring into cases of infantile diarrhoea (zymotic enteritis).

Keeping records of the child's progress up to the age of about 5 years. (*Note*.—These records will be handed on to the School Medical Inspector so that he may conduct his first examination of the child as an "entrant" to school with full knowledge of the child's previous medical history).

B.—SUPERVISION OF MIDWIVES.

There are 390 midwives on the County Register and of these 250 are untrained. At present the supervision of these midwives is carried out by the District Medical Officers of Health and the annual amounts paid to these gentlemen by the Council has been as under during the past five years:—

1914—£744	}	Average for 5 years—£750
1913—£732		
1912—£760		
1911—£762		
1910—£757		

C.—INFANT WELFARE CENTRES.

As the scheme develops it may be possible for centres to be established where consultations for mothers and infants could be held by the Lady Assistant Medical Officer. Such consultations would be carried out in strict accordance with the canons of medical etiquette and professional courtesy. Details will be submitted to your Committee for consideration at a later date.

LOCAL VOLUNTARY ASSOCIATIONS FOR AFTER-CARE.

Existing voluntary Associations for After-Care will be as far as practicable amalgamated in the scheme. But, with all respect may I say, that if the work sketched out herein is to be properly done by far the largest part of it will have to be done by trained women. Voluntary workers, in my experience, have usually got the best of hearts but not always the best of heads. Before any voluntary workers are accepted as helpers in this scheme it would be well to inquire carefully into their qualifications and into the likelihood of their keeping up their allotted work regularly and systematically.

EXTENT OF WORK UNDER SEVERAL HEADINGS.

(a) BIRTHS.—The number of births registered annually in the Administrative County is on the average as under:—

6 Municipal Boroughs	...	...	3850
35 other Urban Districts	...	...	5650
12 Rural Districts	...	...	3800
			<hr/>
Total	...		13,300
			<hr/>

INFANTILE MORTALITY.

Approximately two-thirds of these would be in homes where visitation and advice would be productive of good result. About eight visits would be necessary in the course of the first year and about four visits in each of the four succeeding years. Thus about 9,000 births would need to be visited during the first year, or in other words about 72,000 visits would have to be made. In the second year's operation of the scheme there would once again be about 9,000 births to be visited eight times *plus* 36,000 re-visits of one year old infants to be made. In the case of infants who had completed two years of age probably three visits per annum would suffice and in the case of those who had completed three and four years of age two visits per annum on an average should suffice.

The succeeding years would thus work out on a cumulative basis somewhat as follows:—

	Visits to new Births.	Revisits to				Total.
		One year olds	Two year olds	Three year olds	Four year olds	
1st year of Scheme	72000	—	—	—	—	72000
2nd „ „	72000	36000	—	—	—	108000
3rd „ „	72000	36000	27000	—	—	135000
4th „ „	72000	36000	27000	18000	—	153000
5th „ „	72000	36000	27000	18000	18000	171000

At the end of the fifth year of the cycle the conditions attained in the fifth year would be continued. The magnitude of this section of the work is thus apparent.

(b) MIDWIVES.—The number of midwives on the County Register is close on 400 and it is not anticipated that it will ever fall very much below this. A quarterly inspection would at least be required in order to maintain that high standard of cleanliness and efficiency which is requisite. Thus approximately 1,600 inspections of midwives will fall to be carried out annually.

HOSPITAL TREATMENT.

In a scheme such as this cases are bound to arise where the hospital treatment of the mother or infant will be necessary, *e.g.*, cases of contracted pelvis, eclampsia (convulsions), acidosis (or acid intoxication), albuminuria, chorea, puerperal fever, &c. With the concurrence of the practitioner in attendance some arrangement for the reception of such cases in a hospital should be made. For assistance in this

department of the work we shall no doubt have to trust to obtaining "recommends" for various hospitals. The matter can only be mentioned here as one sure to arise and we must make such preparations for it as may later on be found necessary and desirable.

EXISTING OFFICERS.

In some of the districts whole-time Health Visitors are already appointed and are engaged in carrying out most of the duties mentioned in this report. Arrangements could be made however for the County Council to take over these Officers with the consent of the Council now employing them and their domicile need not be disturbed. Part-time Health Visitors are also employed in a few other districts. Here it will, I think, be advisable to let the term of their appointment run out and in making any preliminary appointments under this scheme to disregard the small areas served by such part-time appointments.

PROPOSED DIVISION OF THE COUNTY.

The preliminary apportionment suggested for the whole County area is as under, one nurse being appointed to each group of districts:—

1. Crewe Borough with Nantwich Rural District and Tarporley Urban District.
2. The Rural Districts of Chester, Tarvin and Malpas and the Urban District of Hoole.
3. The Urban Districts of Neston, Ellesmere Port, Bromborough, Higher and Lower Bebington, Hoylake and the Wirral Rural District.
4. Runcorn and Lymm Urban Districts and the Runcorn Rural District.
5. The Urban Districts of Northwich, Winsford and Middlewich and the Rural District of Northwich.
6. The Urban Districts of Altrincham, Hale, Sale, Bowdon, Ashton-on-Mersey and Knutsford and the Rural District of Bucklow.
7. Congleton Borough, the Urban Districts of Sandbach, Alsager, Buglawton and the Congleton Rural District.
8. Macclesfield Borough, the Urban District of Bollington and the Macclesfield Rural District.

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9. The Urban Districts of Cheadle and Gatley, Handforth, Wilmslow, Alderley Edge, Hazel Grove and Bramhall, Whaley Bridge, Marple and Bredbury and Romiley and the Disley Rural District.
10. The Boroughs of Stalybridge, Hyde and Dukinfield, the Urban Districts of Mottram, Compstall and Hollingworth and the Tintwistle Rural District.

The estimated cost of this scheme may be summarised as under:—

Salary of Lady Assistant Medical Officer	... £350
Clerical Assistance	... .. 80
Furniture and alterations to Office	... .. 50
Travelling Expenses	... .. 50
Salary of ten Nurses	... .. 800
Uniform Allowance and Travelling Expenses	200
Printing, Stationery, Postages, &c.	.. ... 100
	—————
	£1630
	—————

N.B.—It should be noted that no account is taken in this estimate of any possible payments to the County Nursing Association. If the services of their Nurses are utilised at all extensively it will mean that about £200 must be added on to this estimate.

Your Committee decided, subject to the approval of the Council and of the Local Government Board, to adopt the following recommendations:—

1. That the County Council adopt the Notification of Births Act, 1907, for such districts in the Administrative County as have not already adopted this Act and that application be made to the Local Government Board for sanction for the adoption of the Act by the County Council in those districts in the Administrative County which have already adopted it.
2. That three months' notice be given to District Medical Officers of Health of the intention of the Council to terminate the agreement under which they at present supervise midwives in their respective districts and that on the termination of such notice the supervision of midwives be undertaken by the Public Health Department of the Council.

3. That a Lady Assistant Medical Officer be appointed to carry out, under the supervision of the County Medical Officer of Health, the details of the scheme outlined in this Report and to perform such other duties as this Committee may from time to time direct, at a commencing salary of £350 per annum, that she be provided with office accommodation and clerical assistance and that her first class travelling and incidental expenses be paid by this Committee.
4. That advertisements be issued for ten trained Nurses to carry out the duties mentioned in this Report and such other similar duties as may subsequently be prescribed by this Committee: that the salary offered be £80 per annum with an allowance of £5 per annum for uniform and that third class travelling and incidental expenses actually incurred in the performance of their duties be paid by this Committee.
5. That the County Medical Officer of Health be authorised to engage two Clerks, at salaries at the rate of £40 per annum, rising, subject to approved service, by two annual increments of £5 per annum to a maximum of £50 per annum.
6. That the County Medical Officer of Health be authorised to incur an expenditure, not exceeding £50, in preparing and equipping an office for the Lady Assistant Medical Officer and the clerical staff herein named.
7. That the County Medical Officer of Health be authorised to incur the necessary expenditure in printing, stationery, postages and other expenses incidental to the carrying out of this scheme as amended by this Committee.

The following remarks of the Registrar-General (Seventy-sixth Annual Report) are of interest in connection with this subject:—

“The fact that infant mortality is considerably higher under the conditions of town than of country life is well known and the rate for the Rural Districts is exceeded accordingly by 19 per cent. in the case of the smaller towns and by 41 per cent. in that of the county boroughs, but only by 20 per cent. in the case of London. The comparatively small excess in London shows to what a large extent the adverse influence of urban surroundings on infant life may be avoided. The mortality in the County of

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London, the central portion of the largest urban population in existence, was lower than that in the country at large—a very remarkable fact.

“The geographical variation of the mortality dealt with by the table is remarkable, especially in view of its constancy from year to year. In each sex and in every class of area the English mortality was highest in the North and lowest in the South, the position of the Midlands being in all cases intermediate. Even the Rural Districts of the North record a higher rate than London does, the excess being much greater in the male sex. All these statements apply equally to the year 1912 and except for a slightly higher mortality in London than in the northern Rural Districts, also to 1911.”

The Medical Officers of Health of a number of districts have certain remarks to make on the infantile mortality of their respective areas which I reproduce:—

DUKINFIELD MUNICIPAL BOROUGH.—“There were 76 deaths of children under one year, the average for the previous five years being 81. The mortality per thousand births registered was 149, compared with 139 in 1913, 145 in 1912, 206 in 1911, 163 in 1910, 157 in 1909, 214 in 1908, 221 in 1907, 176 in 1906, 196 in 1905, 198 in 1904, 188 in 1903, 182 in 1902 and 275 in 1901. The average for the previous five years was 162. Since 1901, when the infantile mortality in Dukinfield reached its high-water mark of 275, there has been a considerable decline. This year we are well below the average for the previous 10 years. The average for the years 1897 to 1901 (inclusive) was 239.

“In May, 1913, a deputation was appointed by your Committee to visit the towns of Huddersfield, Brighouse, Halifax and Keighley (1) to inquire as to the methods adopted in these towns to reduce infantile mortality and (2) to confer with their representatives on general sanitary administration.

“As a result of these interviews the deputation made the following recommendations to the Committee.

(1) The adoption of the Notification of Births Act, 1907.

(2) The appointment of a lady health visitor with diplomas of the Sanitary Institute and Certificate as School Nurse and to be under the supervision of the Medical Officer of Health. Her duties to be as follows:—

(a) Visiting infants.

- (b) Visiting tuberculous cases.
- (c) Inspecting midwives.
- (d) Inspecting factories and workshops (female labour).
- (e) General duties of school nurse.

“The question of the appointment of a lady health visitor to assist the Health Department in its increased work has also been under consideration and a Voluntary Ladies’ Public Health Society has been formed in the town with the object of assisting the Council in this matter.

The following Table classifies the causes of deaths of infants during the year :—

Congenital.			Infectious.			Gastric.		
Premature Births ..	9		Scarlet Fever ...	0		Enteritis ...	12	
Congenital Defects	3		Erysipelas ...	1		Gastritis ...	2	
Atrophy ...	} ...	9	Measles ...	7		Diarrhœa ...	6	
Debility ...			Whooping Cough	4				
Marasmus ...			Diphtheria ...	0				
<hr/>			<hr/>			<hr/>		
21			12			20		
Tubercular.			Other Causes.					
Meningitis ...	...	1	Laryngitis ...	...	1			
Tabes ...	...	0	Overlying	...	0			
Other Tubercular			Convulsions	...	6			
Diseases	...	0	Bronchitis	...	3			
			Pneumonia	...	5			
			Meningitis	..	1			
			Other causes	...	6			
<hr/>			<hr/>					
1			22					

Of these deaths 8 were under 1 week old.

“	“	14	“	2	“
“	“	18	“	3	“
“	“	21	“	1	month old.
“	“	35	“	3	“
“	“	50	“	6	“
“	“	66	“	9	“
“	“	76	“	12	“

HYDE MUNICIPAL BOROUGH.—“The number of deaths of infants under one year of age was 85, which gives an infant mortality rate of 122.5 per 1,000 births. Compared with 1913,

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the number of deaths is decreased by 25 and with the average of the previous five years is decreased by 26. The average infant mortality rate for the previous five years is 148.5. The infant mortality rate shows a gratifying decrease and may be attributed to several causes, the most noteworthy being undoubtedly the interest aroused in the subject by the activity of the Ladies' Health Society and by the visitations of the health visitor during the last six months of the year. The abolition of a large number of open insanitary ashpits. The enforcing of regulations respecting the frequent removal of accumulations of horse manure and better back-yard sanitation generally, especially in the summer months.

"During the year Miss Schofield was appointed health visitor and she entered on her duties on 22nd June. Her chief duties are the visiting of expectant mothers and mothers of newly-born infants and instructing them, when necessary, on the feeding and clothing of infants. She notes the sanitary condition of the house, number of rooms and occupants, the existence of offensive smells and their cause, ventilation, whether dirty from neglect of tenant or landlord. She reports all defects found. During the six months Miss Schofield has paid 1,123 visits to 329 newly-born infants and has given instruction to the mothers in the most approved methods of feeding and rearing infants. During the six months since Miss Schofield was appointed 24 children died who were born in the same period. The following table shows the result of enquiries made after death :—

District.	Deaths.		Sanitary Condition.					Method of Feeding.			Employment of Mother.			
	M.	F.	Clean or Sanitary.			Dirty or Insanitary.		Breast.	Artificial.		Working out.	Home.		
Hyde	2	1	...	2	...	1	...	0	...	3	...	1	...	2
Newton	9	3	...	8	...	4	...	7	...	3	...	1	...	11
Godley	9	0	...	6	...	3	...	4	...	4	...	2	...	7

"Three of these children were prematurely born, and died before food was administered. Chiefly owing to the initiative of the Mayor, Mr. Councillor Welch, it was decided to supply dinners to nursing and expectant mothers and children under school age, whose circumstances prevented them from providing themselves with sufficient nourishment. These dinners were commenced on the 30th November. Until 31st December the number of mothers and children who attended and dinners supplied were as follows :—

Number of nursing and expectant mothers	...	37
Total number of dinners supplied to mothers	...	569

Average number of weeks each mother attended	...	3 weeks and 2 days
Number of children under school age...	...	19
Total number of dinners supplied to children	...	286
Nursing mothers supplied with milk	...	3
Children supplied with milk	...	6

STALYBRIDGE MUNICIPAL BOROUGH.—“The deaths of infants under one year of age were 120, as against an average of 115 for the previous ten years, but computed upon the number of births registered the infantile mortality was 204 against an average of 180 for the previous ten years.

“Of the deaths from ‘all other causes,’ 13 were due to convulsions, 10 to bronchitis and 12 to pneumonia, a greater number from these affections than in recent years, testifying to the extreme importance of mothers exercising greater care in infant feeding and also in the avoidance of undue exposure to cold, especially during cold and wet weather such as prevailed throughout the greater part of the year.

“Dukinfield Ward has for the year an exceptionally high infantile mortality and I find that it is dependent upon the large number of deaths of infants in that ward from diarrhœa, bronchitis, pneumonia and convulsions, the deaths from which equal one-half of the total deaths from these diseases in infants throughout the borough—in other words, the deaths from these diseases of infants in Dukinfield Ward alone are as numerous as the deaths from the same diseases in all the other three wards of the borough together.

“In an industrial community such as ours, the factors in the production of a high infantile mortality are both numerous and complex, as well as difficult to combat. When we find 30 still-births, 17 deaths entirely due to premature birth and 17 more deaths due to congenital debility and marasmus, besides numerous miscarriages, we realise that there are social conditions prevailing which militate most powerfully against infant development and with which it is well nigh impossible to deal. Much is being done to remedy insanitary conditions throughout the borough and Miss Hanson, the Lady Sanitary Inspector, is doing what she can to supervise the rearing of the infants during their first year of life. Miss Hanson commenced her duties in February, 1908 and the Notification of Births Act, 1907, came into force in our borough on March 1st, 1908. The Act has met with a very ready response, both from the general public and from the midwives and there are very few births indeed which are not notified to me in accordance with its provisions. Information regarding

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these omissions is kindly given me by Mr. Flint, the Registrar of Births and Deaths.

“Very shortly after a birth has been notified Miss Hanson visits the home, gives advice *re* the feeding and management of the infant, notes any defects or insanitary conditions in or about the premises and reports thereon. Visits are again paid to these homes when the infants attain the age of three, six and nine months and reports are again made, while additional visits are paid whenever it is thought advisable. During the year she has paid 2,691 visits *re* births and 1,359 *re* visits. Besides visiting the newly-born infants she also investigates all cases of deaths of infants under one year of age and in this connection she has inquired into the deaths of 116 infants. Of these she ascertained that 21 had never partaken of any food, 38 had been entirely breast-fed, two partially breast-fed and 55 had been artificially fed. Her observations lead her to believe that breast-feeding is being more systematically and more persistently followed out than was the case during the earlier portion of her round of visits and that in case of serious disease, medical advice is more promptly obtained. I must again record the interest taken in the welfare of infants by Councillor Mrs. John Summers, who has not only visited many of the struggling poor and assisted them in the rearing of their infants, but also organised a school for mothers in close association with the Sanitary Authority.

“The school for mothers was inaugurated in November, 1913 and has made marked and continuous progress during the past year. In consequence of the growth in membership, it became necessary to provide greater accommodation for the meetings, which are now held in the Kay Street Mission Hall. There are 309 members on the register, but the average attendance at the meetings is about 100. Lectures are given on the feeding and care of infants and young children, infectious diseases of children, domestic sanitation, cookery and other allied subjects. Patterns of garments for young children are also supplied and instruction is given in the cutting out and making up of them and recently a savings club was opened and is being much appreciated. Particular attention is paid to the condition of the babies; they are periodically weighed and records are kept of their progress. On Whit-Monday, June 1, the first ‘Baby Show’ in Stalybridge was held in the Town Hall Assembly Room. A goodly number of babies competed for the prizes and the event was an unqualified success.”

ALTRINCHAM URBAN DISTRICT.—“A scheme in contemplation to provide a Health Visitor in conjunction with the Hale and

Bowdon Districts, under the Notification of Births Act, 1907, last year, fell through, and the Council has therefore decided to appoint its own Health Visitor and adopt the Act for its own district."

LOWER BEBINGTON URBAN DISTRICT.—"A Lady Health Visitor has been appointed to carry out the work involved. She also investigates and re-visits all school cases of minor ailments and contacts."

BOLLINGTON URBAN DISTRICT.—"Four of the deaths were those of infants who died before attaining the age of 12 months. The infantile mortality rate for the year is thus one of approximately 50 per 1,000 births registered. This rate is very satisfactory especially when compared with that of the previous year, but lest these figures should produce undue elation it will be well to have a glance at the statistics for the years 1910 to 1914 which are as follows :—

In 1910 the infantile mortality rate was 40 per 1,000 births reg.						
„ 1911	„	„	„	155	„	„
„ 1912	„	„	„	51	„	„
„ 1913	„	„	„	133	„	„
„ 1914	„	„	„	50	„	„

"From the above it will be seen that this year's rate is not the lowest attained in the district and further that distinct progress in the reduction of the death-rate of infants is by no means definite or assured. The time has not yet arrived when one can rest on one's oars so far as this most important matter is concerned. It is of most vital importance that every effort be constantly made to reduce this rate to the lowest possible minimum. The influence of climatic conditions on this death-rate is well illustrated in the last two figures of the above table, 1913 being remarkable for a prolonged period of drought in the summer and autumn months. Whilst climatic conditions are beyond the control of man the influences they bring to bear may be kept within human control, at any rate in some degree, as, for example, the prevention of accumulation of garbage and filth will do away with, to a large extent, the breeding places of flies and other insects which carry infection to milk and food generally. Again the most absolute cleanliness of feeding bottles and other utensils for holding milk, whilst important at any time, is never more so than in hot, dry weather. The methods by which we have attempted to keep down this rate are as already frequently mentioned in previous reports and which therefore do not need repeating again in this one. One point however particularly calls

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for attention and this has reference to the subject noted above, viz. :—the accumulation of garbage and the contents of the privy midden. The system for removing these from the premises, devised by your Surveyor, must be beneficial not only as being generally more sanitary and less objectionable but especially from an infantile mortality point of view.

“The National Insurance Act, in providing for sick pay in advanced pregnancy, will undoubtedly be of benefit to the mothers and their off-spring. It would be to the general welfare, I think, if the pay were granted as an understood thing for the last two months in all cases of pregnancy. The thanks of the Council are again due to the District Nursing Association and to Nurse Ashton for their help so willingly given during the year.”

BREDBURY AND ROMILEY URBAN DISTRICT.—“Attention is given to the advice contained in the Local Government Board Order, dated 25th July, 1913, on conditions favouring infant mortality and books of instructions are issued to those having the care of young children by the Medical Officer of Health and by the Registrar of Births. The infantile mortality has dropped of recent years considerably. Eleven deaths were registered under one year during 1914 and of these eight were due to congenital debility and malformations; only three being certified as due to diseases of infancy.”

CHEADLE AND GATLEY URBAN DISTRICT.—“Ten deaths were registered in the district of children under one year of age and the particulars of one transferable death were received, making in all a net total of 11 deaths for the district. The principal causes of death were gastritis and premature birth and congenital defects or debility. There were no deaths registered as due to epidemic diarrhœa. Four of the 11 deaths were of infants under one month old; in one case death was due to suffocation from over-lying and in two cases premature birth and congenital defects. The transferable death was registered as due to miliary tuberculosis. As I have stated in other annual reports, I have no means of ascertaining the exact number of still-born children. I have received notice of one still-birth from a midwife.

“In April, 1907, a circular was issued by the County Medical Officer of Health in which recommendations were formulated so as to prevent excessive infant mortality. A copy of these suggestions was printed in my annual report for the year 1907 and its recommendations are being carried out by your Council, or the various District Nurses and District Visitors, with very satisfactory results as the infant mortality, as in previous years, is extremely low from preventible diseases.

"As regards the prevention of ophthalmia neonatorum the midwives are instructed always to see that the eyes of the newly-born infant are well washed with boric acid lotion, or a weak solution of silver nitrate, if there has been any reason to suspect the mother having an infected discharge, or if the eyes show any signs of inflammation ; so far this treatment has been satisfactory.

"The Notification of Births Act, 1907, had not yet been adopted when your Council considered the question of adopting the Act. It was decided not to do so, as nearly all the cases were attended by medical men and where it has been found necessary to give advice the various District Nurses have taken the matter in hand or reported the case ; so far this arrangement works very well."

COMPSTALL URBAN DISTRICT.—"The mothers are certainly better educated as regards the care of infants and feed them more rationally. Improvements could be made in certain cases and the District Nurse is very attentive to any case notified. Circulars have been distributed by her and parents instructed both by the Doctors and Nurse. There have been no cases of ophthalmia neonatorum. The Notification of Births Act has not been adopted. There was one death of an infant under one year. This was due to malformation of brain."

ELLESMERE PORT AND WHITBY URBAN DISTRICT.—"The Notification of Births Act, 1907, has been adopted by the Council and a Lady Health Visitor appointed to carry out the work as previously mentioned. Sixty infants died before reaching the age of one year, giving an infantile mortality rate of 123 per 1,000 births."

HALE URBAN DISTRICT.—"During the year nine deaths occurred of children under one year of age. The rate for the year is 64.3. This is a considerable improvement on last year, which was 127.6 and taking the rates since the formation of the district, appears to be approximately the average. The causes of deaths in the local cases were as follows :—Bronchitis one, pneumonia one, enteritis two, overlying one, congenital malformation one, premature birth three. Four of these cases occurred in the north ward, three in the central and two in the west. There were none in the south east. As regards rental the distribution was as follows .—

Under £16 (year)	£16—£24	Over £24	Totals
5	2	2	9

"The Notification of Births Act, 1907, has been adopted for the district, as from 1st January, 1915, and Nurse Jackson has

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been appointed to visit such houses, at which births occur, as may be deemed expedient. It will be seen from the above table, that, had the Act been in force during 1914, at least five of these cases would have been visited and possibly the advice given by the Health Visitor would have had beneficial results."

HANDFORTH URBAN DISTRICT.—"The question of adopting the Notification of Births Act was considered by the Council and it was decided that as all the births are attended either by a doctor, or by the District Nurse who reports upon her cases, there was at present no need for its adoption."

HOOLE URBAN DISTRICT.—"The Notification of Births Act, 1907, has not been adopted in this district, but the Council on the 10th of November, 1913, passed the following resolution:—

'That the Clerk communicate with the Cheshire County Council
'that the Hoole Urban Council is willing to adopt the Act, if a
'joint arrangement could be made with the adjoining districts,
'whereby the expense necessary to its effectual working might
'be minimized.'

"In the month of May at a public meeting of leading residents of the neighbourhood it was enthusiastically resolved that steps should be taken to secure the services of a trained nurse to visit the sick poor of the district and so successful was the movement that it is now definitely known that a nurse will commence her duties early in February, 1915. under the auspices of the Chester District Nursing Association. The need has been very pressing and her services will, I feel sure, prove of inestimable value to the working classes of the neighbourhood and more especially to the children. Great vigilance was exercised by the Sanitary Inspector and the men working under him during the summer weather in the removal of house, stable and other refuse. There were very few cases of zymotic diarrhœa and only one death was certified as due to it."

KNUTSFORD URBAN DISTRICT.—"The District Nurse continues to work under the Notification of Births Act. In 1914 she had on the average 54 babies on her list and she paid 1,425 visits. She notified to me one still birth, six deaths and eight removals. The infant mortality figures have been—

Average of 5 years	1895—1899	153
" "	" 1900—1904	120
" "	" 1905—1909	88
" "	" 1910—1914	87

“The infantile mortality figures for 1914 is 106. It has not previously reached 100 since 1905. This shows that gratifying and steady improvement has been going on ever since the district was formed. It also shows that nearly the whole had occurred before the work under the Notification of Births Act was taken up. I must confess my inability to offer any explanation and my disappointment at the fact.

“The infant mortality figures are above in quinquennial periods. No deaths are attributed to atrophy, debility, or maramus and only one to convulsions; in the latter case an inquest was held and ‘want of medical attention’ was part of the verdict. I am not aware of any special factors in this district beyond (*a*) a steady improvement in general sanitation, (*b*) the educational influence of the Health Visitor, (*c*) a larger percentage (than the average) of persons who are well-to-do among the general population and (*d*) the absence of factories employing female labour.”

MIDDLEWICH URBAN DISTRICT.—“The number of infant deaths numbered 15, same as last year. Five to premature birth, and four to pneumonia. The Notification of Births Act has been in force for five years. The Lady Health Visitor has paid numerous visits and instructed the mothers in the care of feeding of their infants.”

NANTWICH URBAN DISTRICT.—“The Babies’ Day Nursery is open daily (Sundays excepted) from 7-30 a.m. to 6-30 p.m.; Saturdays, 7-30 a.m. to 1 p.m. During the year under review 31 babies were nursed in the home and the attendance was 2,357. The attendance is less than the previous year and I feel sure that the infantile mortality would be further reduced if more use was made of the nursery. The mothers who work in the factories are slow to appreciate the advantage of the day nursery and the infants when left in charge of neighbours in many instances are badly nourished.”

NORTHWICH URBAN DISTRICT.—The Inspector remarks:—“The administration of the Notification of Births Act is working satisfactorily. Each house at which a birth was notified was visited by the Lady Health Visitor, who took particulars of the premises and gave instructions when necessary. As to the treatment of young children, re-visits have also been paid to improve the carrying out of the instructions given. This has done good and many of the infants are better cared for than previously.”

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RUNCORN URBAN DISTRICT.—“Although the number of births was less for 1914 than for 1913 (440 as against 474), the infantile death-rate was higher, namely, 139 as against 109. Out of a total of 61 deaths amongst infants under one year of age, 22 of them were infants under one month old, that is, over 36 per cent. Prematurity accounted for 20 infantile deaths out of 61; debility and weakness, 5; convulsions, 14; respiratory diseases, 10. There was only one case of infantile diarrhœa; infectious diseases claimed two and tuberculosis three.

“In the Annual Report of the Medical Officer of Health for the County of Chester for 1913, Runcorn Urban District is specially mentioned as ‘an area where infantile mortality is unquestionably higher than need be’, and in 1914 the rate advanced 30 per cent. and was the second highest figure for Runcorn for the last *seven* years and this in spite of the fact that no epidemic of infantile diarrhœa occurred during the summer months of 1914. Among the causes leading to the largest proportion of deaths, there can be clearly discerned, says the Registrar General:—

1. The home conditions of unskilled workers.

The infantile mortality of the middle classes from infectious diseases for example, is only 40 per cent. of that of the unskilled workers and from tuberculosis and diarrhœa it is less than 50 per cent. The particular infectious diseases holding out the most promise of reduction would appear to be measles and next to it whooping-cough and the common sequelæ of these diseases, bronchitis and pneumonia and under certain circumstances, tuberculosis.

As far as Runcorn in 1914 was concerned the tables given shew a greater infantile mortality rate in wards populated chiefly by the working-class; but the infectious diseases to which the Registrar General has referred do not appear to have contributed to the high infantile mortality of 1914.

2. Injury at birth operates about equally in infants of middle classes and of working-classes. This factor is unavoidable.
3. Congenital malformation similarly is unavoidable.
4. Prematurity is often the effect of prenatal influences upon the mother; the number of premature births diminishes considerably amongst the better classes. There is no

doubt that, although some of these cases are unavoidable, in many of them the cause would be controlled by adequate care of the expectant mother during the month prior to confinement.

5. Atrophy, debility and marasmus are by far the most frequent causes of infantile deaths amongst the working-classes. Undoubtedly a very large proportion of the deaths attributed to these diseases and also to convulsions (which is not a definite disease in itself, but only a symptom), are due to errors in feeding. Ignorance on the part of mothers in the proper management of infants is the most potent factor in the causation of loss of infant life. The figures for 1914 given above greatly emphasise this fact ; such a condition of affairs in a town in which the married women of the working-classes do not engage in employment, is a disgrace, which the Health Committee should attempt to remove by the means which the Government has provided for the purpose, viz., The Notification of Births Act of 1907.

“The Local Government Board, in an appeal to Local Sanitary Authorities for the adoption of the Act, in the circular issued in July, 1914, on ‘Maternity and Child-Welfare,’ intimates that a grant will be distributed by the Board in aid of expenditure of Local Authorities and others in respect of institutions or other provision for maternity and child welfare, as well as in respect of the salaries of Health Visitors and other officers engaged for this work. The Local Government Board go on to remark that the efforts which have been made by many Local Authorities and voluntary agencies to deal with questions connected with infant welfare in recent years have undoubtedly helped to secure improved conditions for children and have played an important part in the campaign for the reduction of infantile mortality. The Board attach very great importance to the work of home visitation and in promoting schemes on the lines laid down, ‘the first step after the adoption of the Act by a Local Authority should be the appointment of an adequate staff of health visitors.’ Thus in general, the object of the Notification of Births Act, 1907, was primarily to enable Local Authorities to deal more completely with infantile mortality and secondarily to organise all the elements which have a direct or indirect bearing on infantile health, that is, the ante-natal, natal and post-natal conditions of the child.”

WILMSLOW URBAN DISTRICT.—“The Council, after consideration, decided not to adopt the Notification of Births Act. Printed

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cards of instructions to mothers are distributed. Handbills, detailing measures for dealing with the fly nuisance and the care of milk and other foods in the home with a view to the prevention of infantile diarrhœa, were distributed in the summer. Ophthalmia neonatorum is now a notifiable disease. One case was reported by a medical practitioner during the year."

WINSFORD URBAN DISTRICT.—"The Council has adopted the Notification of Births Act and it will come into force on April 1st, 1915. No arrangements have yet been definitely made for its administration. In a small district like this no work has hitherto been done by the authority for the welfare of mothers or expectant mothers, or for the prevention of infant mortality, or generally for child welfare; or for the prevention of ophthalmia neonatorum. *(The last sentence I believe applies to most of the authorities in the County; I do not mean to imply that Winsford is behind its neighbours. I am simply ploughing stolidly through the subjects which I am definitely ordered to report upon).*

"The infant mortality figure is 104 per 1,000, calculated on 28 deaths and 270 births. It should be stated that the 28 deaths include no less than 14 from the unsatisfactory cause of 'prematurity, debility, convulsions, &c.' and in one case premature triplets died and in another case premature twins. Had these been single births, the 28 would have been only 25 and the figure 93.

"The infant mortality figures were published in 1908 in decennial groups, viz. :—

1878—1887	...	144
1888—1897	...	144
1898—1907	...	126

to which can now be added a quinquennial group,

1908—1912	...	121
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and two individual years,

1913	...	151
1914	...	104

"One death (F., 28 days), was attributed to convulsions only; two to 'debility at birth' and nine to prematurity. The 'special factors' in this district include (a) the larger percentage (than the average) of persons of the working class; (b) the absence of any organisation which could exercise an educational influence; (c) the fluctuations of trade, leading to occasional periods of diminished wages and partial deprivation of the necessities of life and (d) a somewhat low standard, in the past, of domestic sanitation."

BUCKLOW RURAL DISTRICT.—“The infant mortality in three ecennial periods were :—

1878—1887	101
1888—1897	118
1898—1907	107
and in the next quinquennial period	
1908—1912	80
and two individual years	
1913	91
1914	57

“One death (at 6 days) was attributed to convulsions ; three deaths (at one day, 10 days and 20 days) to debility ; and one death (at 12 days) to spina bifida. Six deaths, at various ages, were attributed to prematurity ; but only one to syphilis. The ‘special factors’ in this district include those usually found in healthy country districts (*e.g.* 56,000 acres to 23,000 population) ; the two most densely populated townships have only two and $2\frac{1}{2}$ persons to the acre respectively. Twenty-one townships out of 30 have no resident midwife. Contact at one point with the city of Manchester and at other points with eight Urban Districts, introduces local variations in the direction of more ‘urban’ conditions.”

NANTWICH RURAL DISTRICT.—“Forty-nine of the deaths registered were those of children under one year of age. The numbers for the preceding ten years were :—59, 52, 67, 38, 36, 53, 53, 48, 49 and 44. Of these infantile deaths only one was ascribed to the diarrhœal group of diseases, none to tuberculosis, whilst measles was the cause of one death. Sixteen of the deaths occurred in the first week of life and were ascribed to causes which existed at the time of birth. Infantile mortality is regarded as the most sensitive index of the health of a community—partly because of the frailty of infant life, partly because a variety of factors are involved and partly because many of these factors are social and personal, as well as environmental. A high infantile mortality implies an increased death-rate up to five years of age and a high prevalence of the conditions which determine national physical inferiority. The printed instructions given to mothers of newly-born children are appreciated and prove exceedingly useful. The matters emphasised in this booklet are cleanliness within and around the dwelling, the cleanliness of food and its proper storage, preparation and suitability for the infant.

“The Notification of Births Act is not in force in the district. In his last report Dr. Turner stated that he would greatly appreciate the early information as to births which the Act is

INFANTILE MORTALITY—ILLEGITIMATE INFANTS.

capable of affording, if only he could make use of the information when obtained. As the present staff is inadequate for the proper working of the Act he could not recommend its adoption without the services of a Female Health Visitor. The number of deaths under one year of age was 95 per 1,000 births registered."

NORTHWICH RURAL DISTRICT.—"Of the 38 infants who died three were illegitimate and two of them succumbed to diarrhœa, the only two cases recorded in the district; while the other died from convulsions, due to improper feeding and upon its death an inquest was held. More than half the number died from premature birth or debility from causes prior to birth; for 14 deaths were due directly to premature birth, four marasmus during the first three weeks, while of the children who died, two with malformations and two with atelectasis, would probably never have made good citizens had they survived, nevertheless it shows that care during pregnancy of prospective mothers is called for. Of the other deaths two were from whooping-cough, one from diphtheria, only two from tuberculosis—only two infants out of 22 deaths, 17 being over 15 years of age; which means that the milk fed (presumably) part of the population is freer from tubercle than the other portion; perhaps the tubercle bacillus has emigrated from the milk to the beer. Five infants died from convulsions and only one from pneumonia and one from bronchitis. As 38 children out of 548 who were born died before attaining one year of age the rate per 1,000 is 69."

TINTWISTLE RURAL DISTRICT.—"Six deaths of infants under one year were registered, being equal to a death-rate of 2.7 per 1,000 persons living and 136 per 1,000 births registered.

"Causes of death were as follows :—

Convulsions...	...	...	2
Whooping-cough	...	...	1
Marasmus ...	...	...	1
Membranous croup	...	...	1
Injury at birth	...	...	1

"The increased death-rate is about one per 1,000 persons living, which does not call for much comment."

Illegitimate Infants.

The only Report which contains an allusion to this matter is that for the Borough of Crewe. This Report shews for a number of years the death-rate amongst illegitimate children and with four exceptions (1900, 1909, 1912 and 1913) this is higher than that of children born in wedlock—see Table below.

ILLEGITIMATE INFANTS—STILL-BORN CHILDREN.

	1901	1902	1903	1904	1905	1906	1907	1908	1909	1910	1911	1912	1913	1914
Infantile Mortality of legitimate children ...	180	130	147	159	131	118	108	101	106	102	162	82	106	85
Infantile Mortality of illegitimate children...	200	156	166	162	256	224	142	166	68	116	209	80	47	75

The Registrar-General in his Seventy-sixth Annual Report comments as follows on the illegitimate births in England and Wales for the year 1913:—

“Stated in relation to unmarried women of conceptive ages illegitimate births were most frequent in the Rural Districts and least so in London. They were also most frequent in Wales and least so in the South of England. These statements hold good of each of the three years 1911-13.

“The excess in mortality of illegitimate children varied greatly also for different causes of death. It was comparatively slight for infectious disease in general and especially for whooping-cough. It was also slight in the case of deaths from congenital defects and only moderate for bronchitis and pneumonia, but heavy for diarrhoea and atrophy.

“The mortality of illegitimate exceeds that of legitimate infants most of all in the case of deaths attributed to syphilis, being over eight times as heavy. Probably there is much less reluctance to certify the true cause of death in such cases for illegitimate infants, but the difference is greater than could well be explained in this way and it is, moreover, of a nature to be expected from the circumstances of the case. Fatal injury at birth is very much commoner with illegitimate infants. No doubt many of the confinements take place under disadvantageous circumstances. The excess of mortality amongst illegitimate infants ascribed to overlying is also greater than that from all causes.”

Still-born Children.

Again there is only one reference to this important matter in the reports received, namely, in that for the Borough of Crewe, in which it is stated that during 1914 there were 67 still-born children interred in the Borough Cemetery, a number

STILL-BORN CHILDREN—DEATHS FROM ZYMOTIC DISEASE.

equivalent to 6.4 per cent. of the total births. The registration of every still-birth under a certificate signed by a medical practitioner should be made compulsory, for there is little question that many so-called still-births are not such at all—the life has been stilled purposely either during or immediately after birth. *The adoption of the Notification of Births Act ensures the notification of all cases of still-birth*—so that in future years fairly complete figures should be available.

Deaths from Zymotic Disease.

The deaths included under this heading are by general agreement those from certain zymotic diseases, namely:—small-pox, scarlet fever, measles, diphtheria (including membranous croup), whooping-cough, fever (typhus, typhoid, continued and ill defined fevers of uncertain origin) and diarrhoeal diseases of zymotic origin. The death-rate in the Administrative County from this group of diseases during 1914 was 0.85 per thousand of the estimated population. In the 6 Municipal Boroughs it was 1.31, in the 35 other Urban Districts 0.82 and in the Rural Districts 0.47 per thousand of the estimated populations. In most districts this death-rate was lower than it was in 1913.

There were 531 deaths in the County from this group of diseases, a number somewhat lower than that recorded during the previous year.

The rates appear to have been unusually high in the following areas:—

Dukinfield M.B.	...	...	3.10
Ellesmere Port U.D.	...	...	2.87
Tintwistle R.D.	...	...	2.27
Northwich U.D.	..	...	1.58
Lower Bebington U.D.	...	...	1.29

Death from diarrhoeal diseases (175), measles (111), whooping-cough (110), diphtheria (63) and scarlet fever (54) were the chief causes of the zymotic mortality. "Fever" caused but a small mortality during 1914 (18 deaths).

The death-rates in Cheshire (Administrative County) and England and Wales from this class of disease for the past thirteen years have been as under:—

DEATHS FROM ZYMOTIC DISEASE.

Year.		Cheshire.	England and Wales.	
1914	...	0.85	...	
1913	...	1.04	...	
1912	...	0.78	...	This figure is not now quoted by the Registrar-General.
1911	...	1.80	...	1.88
1910	...	0.77	..	1.23
1909	...	0.66	...	1.12
1908	...	1.13	...	1.29
1907	...	1.14	...	1.26
1906	...	1.27	...	1.73
1905	...	1.10	...	1.52
1904	...	1.84	...	1.94
1903	...	1.15	...	1.46
1902	...	1.19	...	1.64

The rate for 1914 thus stands out as the lowest rate but three on record during this period. This rate is subject to somewhat extreme fluctuations, chiefly due to the prevalence and fatality of diseases which are apt to occur in epidemic outbursts and therefore too much must not be made of the statistics of a single year.

A comparison with the records of previous years as to deaths from the several zymotic diseases is useful and interesting. Presented as rates per thousand persons living these may be arranged as follows, comparative figures being given for the eleven preceding years:—

Year.	1914.	1913.	1912.	1911.	1910.	1909.	1908.	1907.	1906.	1905.	1904.	1903.
Smallpox ...	0.00	0.001	0.00	0.001	0.001	0.0	0.0	0.0	0.0	0.0	0.03	0.02
Measles ...	0.18	0.16	0.23	0.22	0.13	0.18	0.21	0.35	0.13	0.23	0.48	0.10
Scarlet Fever ...	0.09	0.05	0.05	0.04	0.07	0.12	0.12	0.10	0.11	0.09	0.10	0.15
Diphtheria and Membranous Croup ...	0.09	0.137	0.10	0.12	0.16	0.11	0.15	0.14	0.15	0.17	0.15	0.18
Whooping-cough	0.18	0.15	0.15	0.20	0.18	0.06	0.23	0.25	0.14	0.16	0.35	0.32
Fever ...	0.021	0.038	0.04	0.05	0.07	0.06	0.08	0.06	0.09	0.10	0.11	0.06
Diarrhœa ...	0.28	0.44	0.20	1.14	0.13	0.22	0.34	0.19	0.65	0.35	0.62	0.32
Total rate ...	0.85	1.0	0.19	0.78	0.77	0.66	1.13	1.14	1.27	1.10	1.84	1.15

SCARLET FEVER—DIPHtheria AND MEMBRANOUS CROUP.

With the exception of the death-rate from scarlet fever and diarrhœal diseases the figures for 1913 and 1914 present but little difference.

Scarlet Fever.

There were 54 deaths due to this disease during 1913, namely, 31 in the Municipal Boroughs, twelve in the 35 other Urban Districts and eleven in the 12 Rural Districts. The death-rate from this disease in the Administrative County was 0.09 per thousand persons living.

Last year there were 34 deaths from this disease in the Administrative County, the death-rate per thousand of the estimated population being rather more than half as high as during 1914.

The mortality from scarlet fever has fallen to a remarkable degree during the past 40 years not only in this County but throughout the whole country. The type of disease prevalent of recent years is totally different from what it was 20 years ago. The disease still remains exceedingly fatal to children under the age of ten years and particularly to children in the first five years of life. The decline in scarlet fever mortality as a whole is now regarded as being due to a milder form of infection rather than a diminished occurrence of the disease.

Diphtheria and Membranous Croup.

The number of deaths due to these causes during 1914 in the Administrative County was 63, a number equal to a death-rate of 0.09 per thousand persons living. This is a decrease of 23 deaths as compared with the record of 1912.

The deaths numbered 15 in the six Municipal Boroughs, 30 in the 35 other Urban Districts and 18 in the 12 Rural Districts. The largest number of deaths, namely, six, occurred in Runcorn Urban District and a similar occurrence is recorded for the year 1913.

Diphtheria still continues to be much more destructive in the town than in the country, although it was in early years considered to be mostly a disease of rural districts. This fact is particularly noticeable in children under five years of age, who die of it practically at twice as great a rate in urban areas as they do in rural. In England and Wales the

DIPHTHERIA AND MEMBRANOUS CROUP—WHOOPIING-COUGH.

mortality from this disease in children under five years of age has practically been halved since 1901, but this diminution does not hold in children slightly older, *i.e.*, in the 5—10 year period of life who are living in rural areas, though it does hold for such children residing in urban areas. This decline in the mortality is almost without doubt due to the use of antitoxin. The number of Local Authorities supplying antitoxin free of charge to necessitous cases continues to increase.

No better testimonial to the value of diphtheria antitoxin can be quoted than that given by the Registrar-General (Seventy-sixth Annual Report):—

“About 80 per cent. of the total deaths in London occur in the hospitals of the Metropolitan Asylums Board and it is of interest to note how low the fatality of cases treated there, which is still falling, is in comparison with that of the years immediately preceding the introduction of antitoxic serum treatment. During the four years 1890-93 the proportion of deaths was 304 per 1,000 admissions to these hospitals, whereas in 1913 it was only 65 per 1,000.”

Whooping-cough.

The deaths ascribed to this cause numbered 110, equal to a death-rate of 0.18 per thousand persons living. The deaths occurred as under:—

6 Municipal Boroughs	...	...	30 deaths
35 Other Urban Districts	...	..	56 „
12 Rural Districts	...	...	24 „

This is a slight increase on the previous year's records.

Thirteen of these deaths occurred in the Borough of Stalybridge and twelve in Ellesmere Port.

DUKINFIELD MUNICIPAL BOROUGH.—The Medical Officer of Health writes:—“Whooping-cough accounts for seven deaths, compared with five in 1913, three in 1912, one in 1911, eleven in 1910, one in 1909, eight in 1908, seven in 1907, one in 1906, one in 1905, four in 1904, twelve in 1903, three in 1902, ten in 1901, fourteen in 1900 and nineteen in 1897. Measles and whooping-cough accounted for eleven out of thirteen deaths from infectious diseases in Dukinfield in 1914. Next to measles and scarlet fever, whooping-cough is more fatal than any other disease in children and in Dukinfield it is more

WHOOPING-COUGH—MEASLES—FEVER.

fatal than scarlet fever. There is no doubt that in infants under one year it is the most fatal of all epidemic diseases. Concurrent epidemics of measles and whooping-cough are of frequent occurrence. It is interesting to notice the verification of this in Dukinfield.

DEATHS IN THE YEAR,

Whooping- cough	1903	1904	1905	1906	1907	1908	1909	1910	1911	1912	1913	1914
Measles ...	12	4	1	1	7	8	1	11	1	3	5	7
	6	18	10	2	41	5	8	3	23	11	1	22

“Whooping-cough is a typical epidemic disease and occurs at short intervals of two or three years in outbreaks that affect a large proportion of susceptible persons. Owing to the absence of rash and the insidious onset of the symptoms, this disease is rarely detected until many days after it has reached its infectious stage. Preventive measures are, therefore, not very successful.”

Measles.

This ever-present disease caused 111 deaths in the County, viz.:—58 in the Municipal Boroughs, 39 in the Urban Districts and 14 in the Rural Districts. The Boroughs of Dukinfield and Stalybridge suffered somewhat severely (22 and 32 deaths respectively) and the number of deaths was high in Altrincham Urban District (15) and in Ellesmere Port and Whitby Urban District (13).

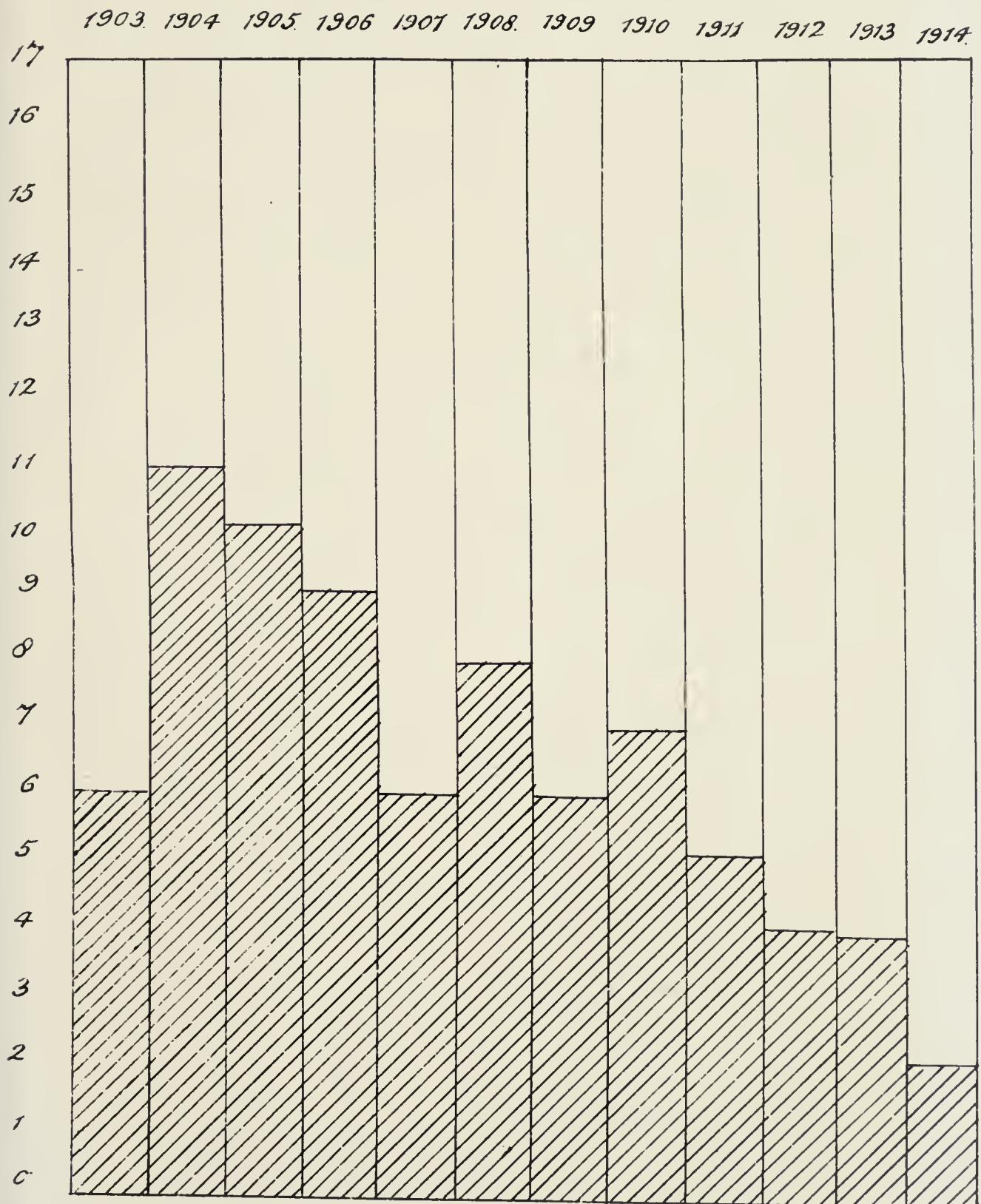
Fever.

This term is virtually synonymous with enteric or typhoid fever. The deaths due to “fever” in the Administrative County during 1914 numbered 18, equal to a rate per thousand persons living of 0.021. The death-rate from this disease or group of diseases has not been a high one in the County for a long time and it has been steadily diminishing for many years as may be seen from the accompanying chart.

There was no special prevalence of the disease in any part of the County during the year. The mortality from typhoid fever has dropped considerably during the course of the last 30 years. The drop was very marked during the first 20 years of that period, but during the past 10 years it has not been so great. This diminution in mortality is due rather to lessened prevalence than to a diminution in the fatality rate amongst those attacked. Another fact worthy of note is that

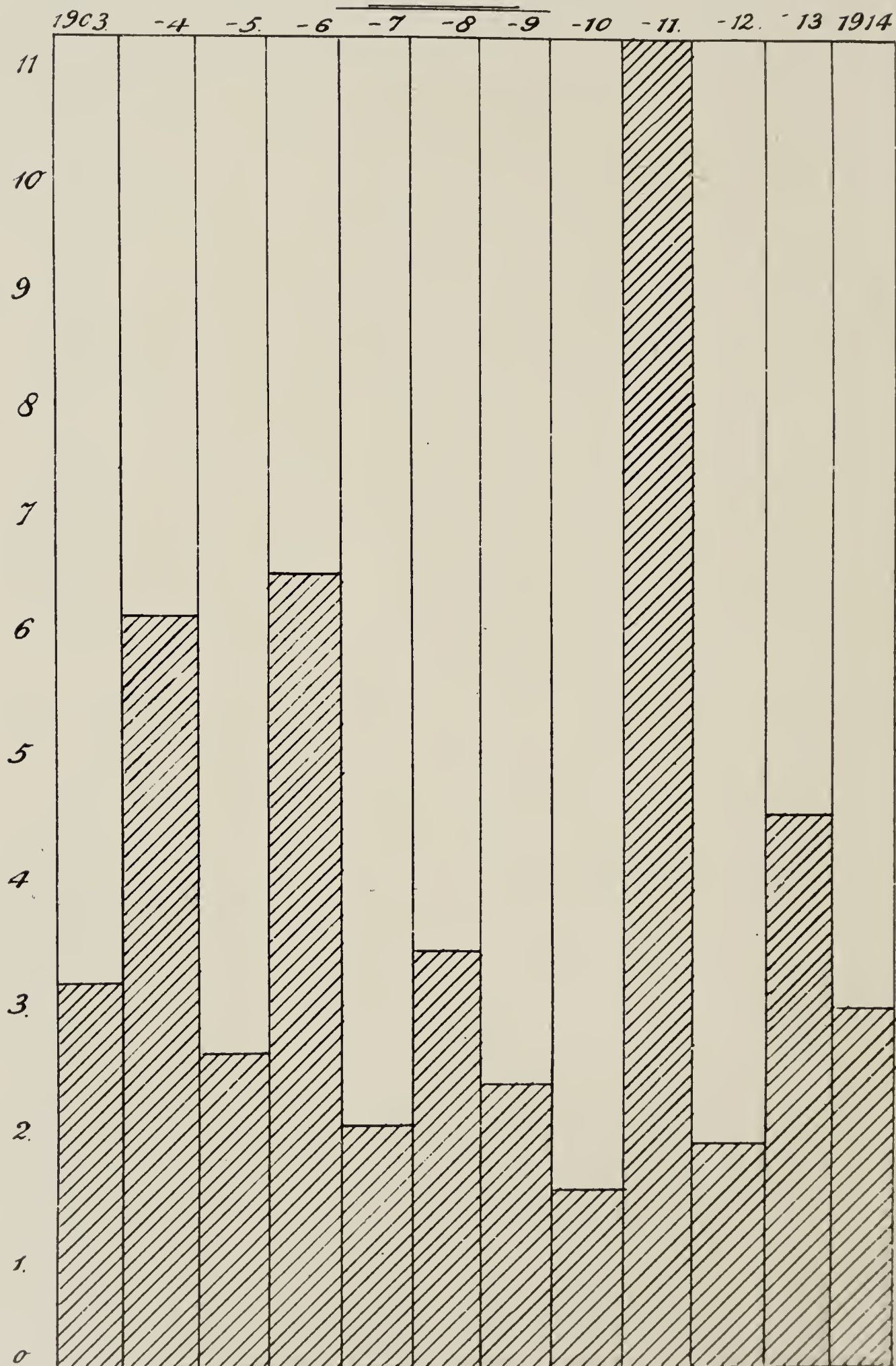
DEATH RATE FROM "FEVER" IN CHESHIRE.

—— 1903 1914. ——



DEATH RATE FROM DIARRHOEAL DISEASES.

— 1903 - 1914. —



DIARRHOEAL DISEASES—RESPIRATORY DISEASES.

enteric fever is enormously more fatal in the town than in the country and that both in town and country the death-rates in males above the ages of ten years considerably exceed those in females.

Diarrhoeal Diseases.

There are 175 deaths recorded in the Administrative County as due to diarrhoea and enteritis, a number considerably less than that for 1913. The diarrhoeal death-rate was 0.28 per thousand persons living. The deaths occurred as under:—

6 Municipal Boroughs	..	...	85 deaths
35 Other Urban Districts	...	...	71 „
12 Rural Districts	...	...	19 „

Dukinfield and Stalybridge Municipal Boroughs had a somewhat large share of these deaths, namely, 62 and 78 respectively. The Urban Districts of Higher Bebington, Ellesmere Port and Northwich and the Rural District of Runcorn suffered rather heavily from diarrhoeal prevalence.

Respiratory Diseases.

Bronchitis, broncho-pneumonia, pneumonia and pleurisy are included under this heading. The total deaths in the Administrative County during 1914 from this group of diseases were 1,243, equal to a death-rate per thousand persons living of 2.0. The death-rate from this group of diseases during the past eleven years has been as follows:—

Year.			Death-rate.
1914	...	...	2.0
1913	..	...	1.8
1912	...	...	2.03
1911	...	...	1.97
1910	...	...	1.8
1909	...	...	2.3
1908	...	...	2.08
1907	...	...	2.2
1906	...	...	2.12
1905	...	...	2.26
1904	...	...	2.52
1903	...	...	2.22
1902	...	...	2.58

There is thus a slight increase in the death-rate from this class of disease, the rate recorded for 1914 being the fourth lowest for 14 years.

EPIDEMIC INFLUENZA—PULMONARY TUBERCULOSIS.

The mortality from pneumonia has been found to be greater in town than in country districts by more than 75 per cent. In general the mortality of males greatly exceeds that of females and amongst children under the age of five years pneumonia is particularly fatal. Lobar pneumonia is now definitely recognised as one of the infective diseases and for a good many years there has been a tendency amongst all connected with preventive medicine to regard most forms of pneumonia as to some extent at all events infective.

Epidemic Influenza.

During 1914 there occurred 72 deaths in the County as the direct or indirect result of this disease. This shows a distinct increase on the records of the previous year.

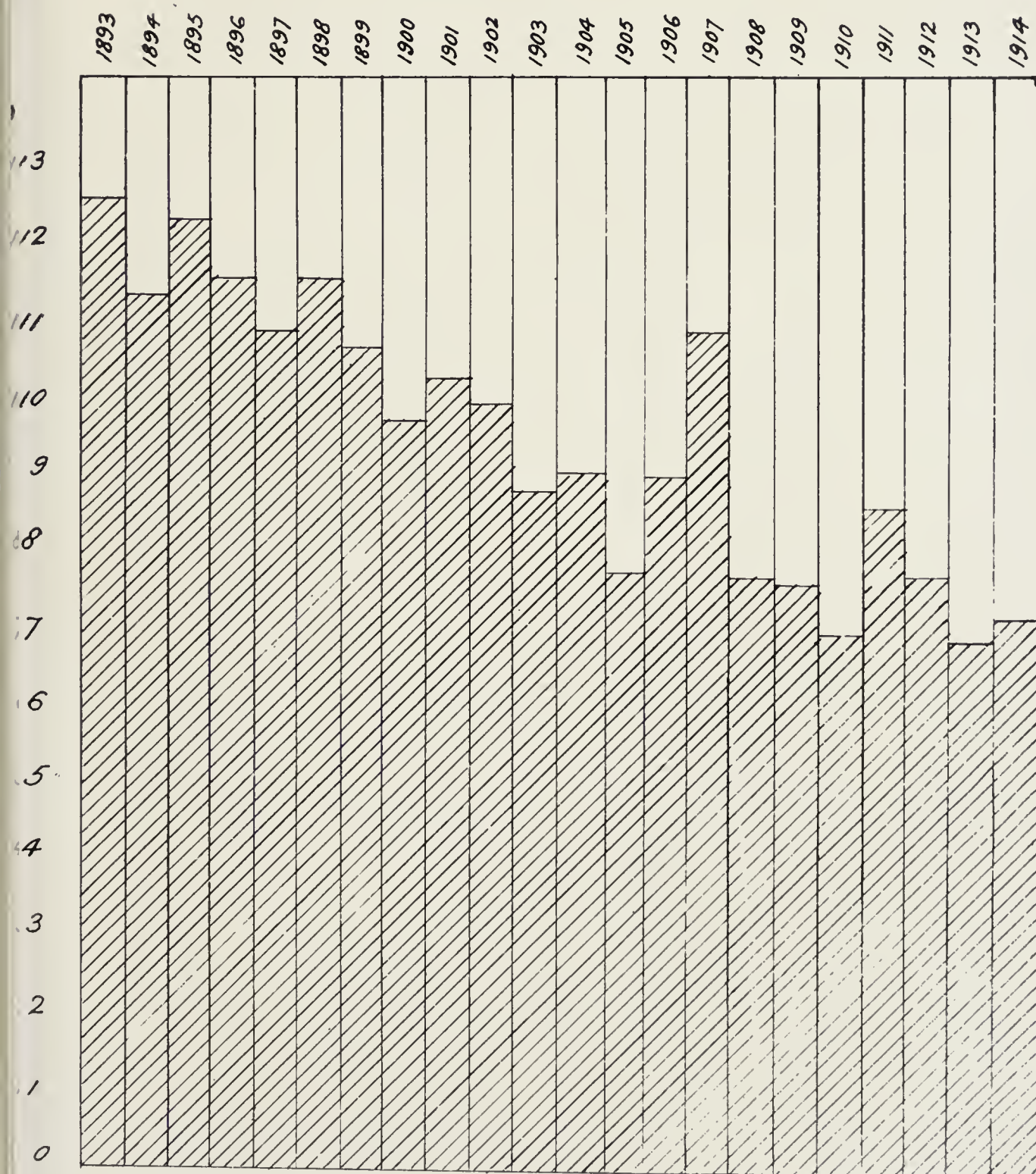
Pulmonary Tuberculosis.

This disease claimed no fewer than 445 victims during 1914 in the Administrative County, a number equal to a death-rate of 0.73 per thousand persons living. This is a slightly more favourable rate than that recorded for the past year. There were 171 deaths from pulmonary tuberculosis in the six Municipal Boroughs, 175 in the 35 Urban Districts and 99 in the 12 Rural Districts. For some years I anticipate that two opposing factors will influence the death-rate from phthisis—the improvement of methods of diagnosis both clinical and bacteriological and the increasing attention to preventive and curative methods. Whether these will counter-balance each other it is not easy to say. As the matter is one of very considerable interest, I append the rates for the County of Cheshire and for England and Wales so far as the latter are within my reach:—

Year.		England and Wales.		County of Cheshire.
1892	...	—	...	1.31
1893	...	—	...	1.25
1894	...	—	...	1.12
1895	...	1.426	...	1.22
1896	...	1.327	..	1.14
1897	...	1.356	...	1.09
1898	...	1.325	...	1.14
1899	...	1.339	...	1.06
1900	.	1.337	...	0.95
1901	...	1.264	...	1.02
1902	...	1.233	...	0.97
1903	...	1.203	...	0.86
1904	...	1.236	...	0.89
1905	...	1.140	...	0.76

DEATH RATES FROM PULMONARY TUBERCULOSIS.

1893 - 1914.



PULMONARY TUBERCULOSIS—OTHER TUBERCULAR DISEASES.

Year.		England and Wales.		County of Cheshire.
1906	...	1.150	...	0.89
1907	...	1.140	...	1.08
1908	...	1.11	...	0.76
1909	...	1.08	...	0.74
1910	...	1.03	...	0.71
1911	...	1.015	...	0.85
1912	..	0.986	..	0.75
1913	...	0.951	...	0.69
1914	...	—	.	0.73

The death-rate from pulmonary tuberculosis shews a decrease during the past 22 years, which has been fairly gradual and steady throughout and provided public and private efforts for the control of the disease are maintained at a high level this decrease ought to be continued until the disease becomes extinct.

The question of the prevention of this disease is discussed in the next section of this report.

Other Tubercular Diseases.

Included in this group are those forms of tuberculosis which affect the lymphatic glands, bones, meninges or covering membrane of the brain, the peritoneum or lining membrane of the abdominal cavity and tuberculosis of general systematic distribution. Tuberculous meningitis is scheduled in a separate column and is responsible for 77 deaths out of this total. Excluding tuberculous meningitis, there were during 1914 133 deaths ascribed to one or other of the above-named diseases, a number equivalent to a death-rate of 0.21 per thousand persons living. This is a shade lower than the rate recorded for 1913, though it shews a distinct decrease on the figures for previous years, for in 1909 the rate was 0.42, in 1908 it was 0.47, in 1907 it was 0.46 and in 1906 it was 0.47.

Very few of the District Medical Officers of Health offer any comments on this group of diseases, which is one on which we have still a great deal to learn. Information is distinctly required as to the age of onset of these various conditions, the length of time during which they cause incapacity, their relative fatality and so on. For Education Authorities, Insurance Committees and those Councils who wish to carry out the treatment of children suffering from these conditions, all information of this character would be most valuable.

Further remarks on this group of diseases appear in the next section of this report.

Cancer and Malignant Disease.

There were 640 deaths due to these various forms of disease during 1914—a number equal to 1.02 per thousand persons living.

The number of deaths varied from 194 in the six Municipal Boroughs to 259 in the 35 other Urban Districts and 187 in the 12 Rural Districts. Statistics for this County are only available as far back as 1900. It is not possible to give what is termed the corrected cancer death-rate, *i.e.*, the proportion of deaths from cancer to persons aged 35 years and upwards (in which class of person about 95 per cent. of the total deaths occur). The deaths are therefore perforce expressed as a rate per thousand of the total estimated populations. The figures are as follows:—

DEATHS PER 1,000 OF THE ESTIMATED POPULATION.

Year.		Cheshire.		England and Wales.
1900	...	0.70	...	0.829
1901	...	0.90	...	0.842
1902	...	0.74	...	0.844
1903	...	0.79	...	0.872
1904	...	0.79	...	0.877
1905	...	0.77	...	0.885
1906	...	0.85	...	0.917
1907	...	0.83	...	0.909
1908	...	0.84	...	0.923
1909	...	0.86	...	0.952
1910	...	0.84	...	0.967
1911	...	0.96	...	0.914
1912	...	0.92	...	0.937
1913	...	1.01	...	0.972
1914	...	1.02	...	—

The death-rates in England and Wales from cancerous disease at all ages and in both sexes averaged 882 annually per million persons living in the five years 1906-10. From the year 1851 down to the present time cancer has shown a steady and persistent increase. During the 40 years 1851-1900 the cancer death-rate amongst males has trebled and amongst females it has doubled. A large amount of this increase is due to the more frequent detection of cancer as the result of operation or of post-mortem examination—in other words to the more favourable opportunities for correct diagnosis available in recent years.

DEATH RATES FROM CANCER AND MALIGNANT DISEASE 1903 1914.

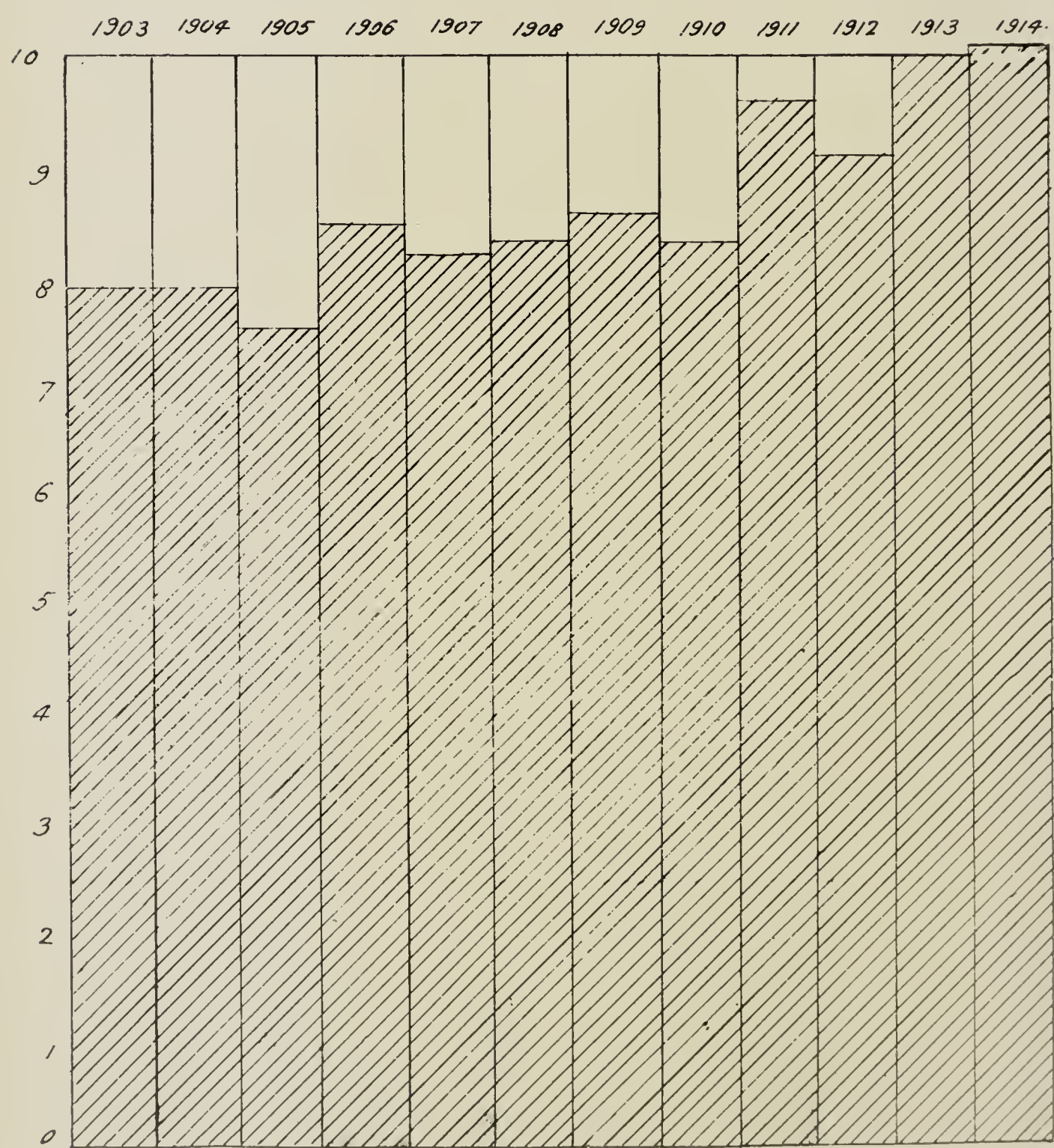


Table shewing death-rate for malignant disease (cancer, &c.)
per 1,000 of population.

MUNICIPAL BOROUGH—					
Congleton	...	...	...	...	1.5
Crewe	...	...	...	...	.9
Dukinfield	...	...	...	...	1.05
Hyde	...	...	...	...	1.03
Macclesfield	...	...	...	...	1.2
Stalybridge	...	...	...	...	1.1
OTHER URBAN DISTRICTS—					
Alderley Edge	...	...	...	...	1.2
Alsager	...	...	...	...	1.4
Altrincham	...	...	...	...	.8
Ashton-upon-Mersey	...	...	...	...	1.1
Higher Bebington	...	...	...	...	.5
Lower Bebington	...	...	...	...	.7
Bollington	...	...	...	...	1.1
Bowdon	...	...	...	...	1.3
Bredbury & Romiley	...	...	...	...	.7
Bromborough	...	...	...	...	.9
Buglawton	...	...	...	...	1.3
Cheadle & Gatley	...	...	...	...	.7
Compstall	...	...	...	...	—
Ellesmere Port & Whitby	...	...	...	...	.5
Hale	...	...	...	...	1.05
Handforth	...	...	...	...	—
Hazel Grove & Bramhall	...	...	...	...	1.4
Hollingworth	...	...	...	...	2.3
Hoole	...	...	...	...	.8
Hoyle & West Kirby	...	...	...	...	1.05
Knutsford	...	...	...	...	.8
Lymm	...	...	...	...	.7
Marple	...	...	...	...	1.9
Middlewich	...	...	...	...	.4
Mottram	...	...	...	...	.9
Nantwich	...	...	...	...	.7
Neston & Parkgate	...	...	...	...	.8
Northwich	...	...	...	...	1.1
Runcorn	...	...	...	...	1.02
Sale	...	...	...	...	.9
Sandbach	...	...	...	...	1.04
Tarporley	...	...	...	...	.7
Wilmslow	...	...	...	...	1.3
Winsford	...	...	...	...	.8
Yeardsley-cum-Whaley	...	...	...	...	1.7
RURAL DISTRICTS—					
Bucklow	...	...	...	...	1.4
Chester	...	...	...	...	1.08
Congleton	...	...	...	...	1.3
Disley	...	...	...	...	2.3
Macclesfield	...	...	...	...	1.3
Malpas	...	...	...	...	1.2
Nantwich	...	...	...	...	.1
Northwich	...	...	...	...	1.
Runcorn	...	...	...	...	.7
Tarvin	...	...	...	...	.9
Tintwistle	...	...	...	...	1.3
Wirral	...	...	...	...	.9

CANCER AND MALIGNANT DISEASE.

Many Medical Officers of Health have commenced a systematic classification of the organs affected and it should be no difficult matter for all such officers to classify these deaths, *e.g.*, as due to cancer (1) of the buccal cavity, (2) stomach, liver, &c., (3) peritoneum, intestines and rectum, (4) female genital organs, (5) mammae, (6) skin, (7) various other organs, such as glands, kidney, larynx, pancreas, spleen, &c. and group separately such things as disseminated cancer, general carcinomatosis and sarcomatosis, multiple cancer, &c.

The Registrar-General recommends that under the heading of cancer Medical Officers of Health should enter deaths from carcinoma, scirrhus, endothelioma, epithelioma, perithelioma, rodent ulcer, sarcoma, cancer, malignant disease, &c. and these should be further classified or assigned to *the part primarily affected*, or, if two or more organs are mentioned without the duration being given, to the one first stated.

The death-rates from cancerous disease in the several districts in the County during 1914 shew considerable variation. The highest rate is that in Bowdon Urban District, where it was 2.9 per 1,000 of the population. Other high rates were recorded in the following districts:—

Neston and Parkgate U.D.	...	1.9
Tarporley U.D.	..	1.9
Wilmslow U.D.	...	1.8
Nantwich R.D.	...	1.8
Lymm U.D.	...	1.7
Hoylake and West Kirby U.D.	...	1.5
Winsford U.D.	...	1.4
Stalybridge M.B.	...	1.3
Hazel Grove and Bramhall U.D.	...	1.3
Macclesfield R.D.	...	1.3
Sandbach U.D.	...	1.2
Yeardsley-cum-Whaley U.D.	...	1.2
Malpas R.D.	...	1.2
Hale U.D.	...	1.2
Hyde M.B.	...	1.1
Macclesfield M.B.	...	1.1
Higher Bebington U.D.	...	1.1

Amongst males cancer of the stomach appears to be the most rapidly increasing form of this disease and a similar remark applies to cancer of the rectum or lower bowel. In the case of women, deaths from cancer of the breast have

CANCER AND MALIGNANT DISEASE.

increased by about 2.9 per cent. during the last 16 or 17 years in spite of the fact that improved methods of operation have saved numbers of lives.

The Registrar-General has some interesting remarks to make in his Seventy-sixth Annual Report on the influence of the marital condition in the occurrence of cancer in women which I reproduce for the information of your Committee and others:—

“The influence of marital condition upon mortality from cancer of the female genital organs has been considered. This effect is seen to be very considerable. During the three years 1911-1913 (which have been considered jointly in order to secure a basis of facts less liable to chance fluctuations than the records of a single year), the mortality of single women from cancer of the ovary has been twice as great as that of the married, due allowance being made for the differing age-distributions of these two sections of the population. The mortality of the unmarried from cancer of the breast similarly exceeded that of the married by 45 per cent., but from cancer of the uterus the married suffered from a mortality 73 per cent. greater than the single. For the sake of convenience the term married is used as including the widowed and divorced.

“These relationships differ very considerably from some of those deduced from their material by surgical writers dealing with the subject, but so far as can be ascertained no comparison has hitherto been published based upon records on the scale of those now under review or so standardized as to make accurate allowance in the comparison for the widely varying age-distributions of the single and the married. A recent American series of cases, stated by the authority dealing with it to amount to “a number much higher than any that served as the basis for the deductions of previous writers,” numbers little over five per cent. of those now being considered. Moreover, it may be noted that previous comparisons of this kind have not taken into account the variations in age-distribution of the mortality from each of these forms of cancer. Unless this allowance is made, false conclusions may easily be arrived at. For instance, the table shows that cancer of the ovary affects young women much more, in proportion to the total mortality it occasions, than does cancer of the breast. If the comparison of marital condition in the two cases were made without taking this fact into account, it would appear that, relatively to breast cancer, the excess of mortality in single women from ovarian disease was greater than it is, because a

CANCER AND MALIGNANT DISEASE.

larger proportion of the deaths occur at those early ages at which single women are relatively numerous. The share of single women in mortality from ovarian cancer should be greater, other things being equal, than their share in that from mammary cancer, on account of this peculiarity of the age incidence of mortality in the two cases—a factor in the situation which must be allowed for in making a valid comparison.

“Were it not for this consideration, a fairly satisfactory indication of the relative prevalence of each form of the disease amongst the single and the married would be afforded by a simple statement of the proportion of the total deaths contributed by each class from each form and from all forms of cancer. These proportions have been as follows during the three years dealt with :—

	Single.	Married and Widowed.
Ovary ...	... 27.9	72.1
Uterus	... 9.1	90.9
Breast...	... 19.5	80.5
All sites	... 15.0	85.0

“It is necessary to consider each of these proportions for the various organs in relation to that for cancer in general in order to obtain from the latter some measure of the proportion in which a disease with the age-incidence of cancer might be expected to take toll of these two sections of the population. For want of such a standard, erroneous conclusions appear in the past to have been founded upon data which, if somewhat scanty, were sound enough. Thus one English authority, dealing with cancer of the breast, finds that about 20 per cent. of his cases are single women—just the proportion in the above table. The conclusion drawn, however, from this correct observation, is that “the above facts show how erroneous is the common assertion that the unmarried women are more liable to carcinoma of the breast than the married.”

“While most English figures published upon the subject appear to point to about 20 per cent. as the proportion of deaths from cancer of the breast occurring amongst the unmarried and a recent American series of 600—700 cases yields a ratio of 17 per cent. as occurring amongst virgins, it is remarkable that several series of cases reported by German writers yield very much lower proportions—10—16 per cent. of all carcinomas in “sterile” women, 9.75 per cent. in women who have not borne children, 9.75 per cent. in the unmarried. If these three observations truthfully represent the facts of the case in Germany then it would seem that in that country cancer of the breast must really

CANCER AND MALIGNANT DISEASE.

be more common in the married. The low figures where sterile married women are included with the single are especially remarkable. It may well be that the preferable distinction to draw where possible is that between women who have and who have not borne children, on the grounds that only in the case of the former has the organ been put to its natural use. If it is objected, however, that the unmarried include a number of women who have borne children, it may be pointed out that the proportion of unmarried nursing mothers must be comparatively low, particularly in view of the movement of population to the towns and the decline in popularity of the wet nurse.

“It should also be remembered that the figures include sarcoma as well as other forms of cancer, whereas these are excluded from most other series. Their number, however, is small and they can easily be excluded when consideration of the subject is resumed at a later date.

“It will be seen that during the period of active sexual life there is practical equality of mortality from breast cancer amongst the single and the married, but that after 45 the excess amongst the single becomes very pronounced. This fact appears to be in direct conflict with the statement of one of the German authorities above referred to, that “only a small number of women with late carcinoma have not nursed.”

“The great excess of mortality from cancer of the uterus amongst the married is in accordance with the generally accepted views upon this subject. The American authority quoted above, it is true, considers that “child bearing has not the direct etiological bearing on the disease which is ascribed to it,” but his figures would scarcely appear to support his conclusion, for he reports a proportion of virgins amongst women dying from cancer of the breast about three times as great as amongst those from uterine cancer.

“It is regretted that it has not been possible to distinguish cancer of the body of the uterus, which is stated not to be more common in mothers than other women or even to be commoner in women who have not given birth, from cancer of the cervix, which is thought to result from injury in labour; but few of the certificates received record cancer of the body. Cancer of the cervix, however, is often mentioned and it will therefore be possible on another occasion to institute comparison for cases returned as such.

CANCER AND MALIGNANT DISEASE.

“It will be noticed that in the case of uterine disease the difference in mortality between married and single is much greater before than after 50, and practically disappears after 75. Thus the difference is greatest with uterine cancer where least with mammary and *vice versa*, but in each case it is the mortality of the single which increases relatively to that of the married with the advance of age.

“The exclusion or separate treatment of sarcoma would be especially desirable in the case of cancer of the ovary where sarcoma is relatively more frequent than in the uterus or breast. Here the excess of mortality amongst the single is very great at all ages after 35, at which the number of deaths is sufficient to attach significance to the figures. The effect of marital condition upon mortality would seem to be at its maximum in the case of the ovary, but has not perhaps attracted so much attention as in the case of the uterus and breast—presumably on account of the lesser frequency of the condition.

“The rates of increase in mortality from cancer of various organs differ greatly. In both sexes the most rapid rates of increase are furnished by cancer of the alimentary tract, especially the intestine and stomach. Disease of the female breast also claims a rapidly increasing number of victims, while mortality from uterine cancer is diminishing. It is possible that there may be some connection between the latter two facts and the relation of mortality to marital condition. It would appear that child-bearing increases the risk of uterine and diminishes that of mammary cancer, and it is therefore only to be expected that the present decrease in fertility should be accompanied by an increase in mammary but not in uterine cancer. The mortality ascribed to cancer of the liver remains almost stationary, in spite of the general increase.”

During the year your Committee decided to follow the lead given by the Borough of Portsmouth and in conjunction with Dr. W. Hodgson, J.P., Vice-Chairman of the Council, I drew up a precautionary leaflet on the subject of cancer for circulation in the County. The wording is largely borrowed from the circular issued by the Medical Officer of Health for Portsmouth and I am indebted to him for his courtesy in permitting this. Many thousands of this circular have now been circulated. The circular runs as follows:—

CANCER AND MALIGNANT DISEASE.

CHESHIRE COUNTY COUNCIL.

PUBLIC HEALTH DEPARTMENT.

The following Leaflet is issued by the Cheshire County Council for the reason that many persons die from cancer whose lives could be saved if they acted upon the advice here offered.

CANCER.

It is vitally important that the following facts about cancer should be known.

It has been brought to the notice of the Cheshire County Council that many persons who die each year from cancer could have been cured if they had applied earlier for medical advice. On questioning patients as to why they did not apply to a doctor earlier, the reason almost always given is that as the early symptoms were not accompanied by pain, they had not thought that anything serious was the matter.

In order therefore to call the attention of the public to the meaning of certain symptoms and conditions and to the vital importance of acting promptly when these are noticed, it has been decided to make the following facts public.

The most reliable cure for cancer, at present known, is its early and complete removal. Cancer, if removed early, has been proved to be a curable disease. If neglected and not removed in its earliest stages, it is most likely to prove fatal. The serious importance of recognizing the condition at an early date and obtaining medical advice as to its early removal is therefore clear. For this purpose the assistance both of the public and the medical profession is needed. It is only by their mutual co-operation that the ravages of this terrible disease can be lessened. The following information should be of vital assistance to the public. It is no exaggeration to say that, if acted upon, the result would be the saving annually of many hundreds of lives which at present are lost.

It frequently happens that cancer, in its early and curable stage, gives rise to no pain or symptom of ill-health whatever. Nevertheless, in its commonest situations, the signs of it in its early stage are not difficult to make out. The following are signs to be regarded with suspicion:—

1.—In case of any swelling occurring in the breast of a woman after 40 years of age, a medical man should at once be consulted. A large proportion of such swellings are cancer.

CANCER AND MALIGNANT DISEASE.

2.—Any bleeding, however trivial, occurring *after* the change of life often means cancer, and cancer which is at that stage curable. If neglected till pain occurs this means cancer which is almost always incurable.

3.—Any irregular bleeding occurring at the change of life should invariably be submitted to a doctor's investigation. It is not the natural method of the onset of the change of life and in a large number of cases it means commencing cancer.

4.—Any wart or sore occurring without a known cause on the lower lip in a man over 45 years of age is usually cancer, particularly if it remains there in spite of treatment by simple or ordinary remedies. If removed at once the cure is certain; if neglected the result is inevitably fatal.

5.—Any sore or swelling occurring on the tongue or inside of the mouth in a man after 45 years of age should be submitted for medical opinion without a moment's delay in order that a decision may be at once arrived at by an expert microscopical examination as to whether it is cancer or not. A very large proportion of such sores or swellings occurring at this time of life are cancer and if neglected for only a few weeks the result is almost certainly fatal. If removed at once the prospect of cure is good.

6.—Any bleeding from the bowels occurring in a person over 45 years of age (commonly supposed by the public to be "piles") should be reported to the patient's medical attendant at once. A large proportion of such cases are cancer, which at this stage is perfectly curable.

7.—When warts, moles, or other growths on the skin are exposed to constant irritation they should be immediately removed. A large number of them, if neglected, end by becoming cancer.

8.—Take immediate steps to prevent irritation of the tongue and cheeks by broken jagged teeth, and of the lower lip by clay pipes. Many of these irritations, if neglected, end by becoming cancer.

9.—Although there is no evidence that cancer is infectious under ordinary circumstances it is desirable that rooms occupied by a person suffering from cancer should be cleaned and disinfected from time to time.

MEREDITH YOUNG, M.D.,

County Medical Officer of Health.

PUBLIC HEALTH DEPARTMENT,

CHESTER, *January, 1915.*

CANCER AND MALIGNANT DISEASE.

That interest is being aroused in this important subject is apparent from the Annual Reports of the District Medical Officers of Health. I submit a few extracts from such Reports:—

DUKINFIELD MUNICIPAL BOROUGH.—“Cancer accounted for 21 deaths, compared with 12 in 1913, 13 in 1912, 18 in 1911, 17 in 1910, 8 in 1909, 17 in 1908, 10 in 1907, 5 in 1906, 5 in 1905, 10 in 1904, 16 in 1903, 11 in 1902, 10 in 1901 and 10 in 1900. This disease, generally affecting people over 30 years of age, has caused an increased number of deaths of recent years, the explanation of which is not very satisfactory. Certain soils seem to favour production of disease and some think that it is associated with a micro-organism.”

STALYBRIDGE MUNICIPAL BOROUGH.—“The mortality from cancer (including ‘malignant disease’) continues heavy, 31 deaths having resulted from this disease during the year, the numbers for previous years being:—

1913	1912	1911	1910	1909	1908	1907	1906	1905	1904
36	26	24	22	28	21	22	28	23	20
Seat of Disease	}	Digestive Tract.	Liver.		Breast.		Uterus.	Other parts or Organs.	
		14	3		5		4	5	

“As regards sex, 15 of the deaths were of males and 16 were of females.”

LOWER BEBINGTON URBAN DISTRICT.—“The deaths ascribed to malignant disease per 1,000 of the population living in Urban Districts of north-west Cheshire (1914) are as under:—

	Estimated population mid-year 1914.	Number of deaths from malignant disease.	Rate per 100 of population living.
Bromborough ...	... 2021	... 2 ...	0·95
Ellesmere Port and Whitby	... 13596	... 8 ...	0·58
Hoylake and West Kirby	... 15113	... 16 ...	1·05
Higher Bebington ...	... 1775	... 1 ...	0·56
Lower Bebington ...	... 13164	... 10 ...	0·75
Neston and Parkgate	... 4854	... 4 ...	0·82

CHEADLE AND GATLEY URBAN DISTRICT.—“Nine deaths were registered as due to cancer in the district proper and one transferable death was registered as due to malignant disease, making a total of ten in all for the district proper. The parts affected were in three cases the stomach, in one case the rectum, in one case the liver, in one pancreas and in two cases the breast and in one the parotid gland. Of the four cases at

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the public institutions, in one case the stomach was affected, in another the pancreas, in another the liver and in one the pelvis."

ELLESMERE PORT AND WHITBY URBAN DISTRICT.—"There were eight deaths from cancer; the sites and sexes of the sufferers are given below:—

Site.		Males.		Females.		Total.
Stomach	...	1	...	1	...	2
Liver	...	1	...	1	...	2
Gall Bladder	...	1	...	—	...	1
Thyroid Gland	...	—	...	1	...	1
Uterus (Cervix)...		—	...	2	...	2
Total		3	...	5	...	8

HALE URBAN DISTRICT.—"During the year ten deaths from cancerous diseases were notified. This figure continues high, but I am unable to throw any light on the subject. The figures for the last few years are as follows:—1913, 11; 1912, 7; 1911, 8; 1910, 9; 1909, 5; 1908, 10."

HOYLAKE AND WEST KIRBY URBAN DISTRICT.—"Cancer accounted for 16 deaths in 1914, 23 deaths in 1913, 13 in 1912 and 16 in 1911. The sites of the growth and sexes of the affected persons are given in the following list:—

Sites.		Males.		Females.		Total.
Breast	...	—	...	3	...	3
Bone (Antrum)	...	—	...	1	...	1
Bowel	...	2	...	3	...	5
Bladder	...	1	...	1	...	2
Uterus	...	—	...	1	...	1
Rectum	...	1	...	1	...	2
Liver	...	—	...	1	...	1
Ovary	...	—	...	1	...	1
Totals		4	...	12	...	16

KNUTSFORD URBAN DISTRICT.—"The cancer classification was formerly always given and was discontinued only because no one seemed to want it. The details of cases for 1914 are as under:—

M.	...	51	...	Mouth.
M.	..	59	...	Liver.
M.	...	40	...	Tongue.
M.	...	64	...	Lung.
M.	...	51	...	Rectum.

CANCER AND MALIGNANT DISEASE.

NESTON AND PARKGATE URBAN DISTRICT.—“It will be seen that four deaths took place from cancer. The site of the malignant growth and the sex of the patient are indicated in the subjoined table:—

Site.			Males.	Females.	Total.
Bowel	...	...	2	1	3
Uterus	...	...	0	1	1
			—	—	—
Total	...	...	2	2	4

WINSFORD URBAN DISTRICT.—“There were nine deaths, equivalent to a rate of 0.78. The details are as under:—

F.	...	65	...	Breast.
F.	...	45	...	Breast.
M.	...	46	...	Larynx.
F.	...	85	...	Face.
F.	...	76	...	Breast.
F.	...	54	...	Breast.
M.	...	38	...	Liver.
M.	...	15	...	Orbit.
F.	...	67	...	Stomach.

BUCKLOW RURAL DISTRICT.—“During 1914 there were 34 deaths, equivalent to a rate of 1.56. Twelve were males and twenty-two females.

“The organs affected were:—tongue, three; œsophagus, three; stomach, liver, &c., twelve; peritoneum, intestines and rectum, seven; female genital organs, two; mammœ, five; kidney, one; bone, one.

“The average number of cases during the preceding five years was twenty-three and the highest in any year twenty-nine; the return for 1914 is therefore either accidentally heavy, or marks an increased prevalence of the disease.”

NANTWICH RURAL DISTRICT.—“Three deaths were caused by cancer and malignant disease. Thus 1.01 per cent. of the total deaths were ascribed to this disease. The whole of the deaths were of persons over 65 years of age. Dr. Turner pointed out in the Report of 1913 the importance of seeking medical advice at the earliest possible moment in all cases of suspected new growth and it is well to again refer to the importance of this.”

Alcoholism and Cirrhosis of the Liver.

There are 78 deaths ascribed to these causes of death, namely:—24 in the six Municipal Boroughs, 40 in the 35 other Urban Districts and 14 in the 12 Rural Districts. As remarked in previous Reports, however, this is no criterion of the effects of alcoholism, for in the first place the true cause of death is frequently not put on record and, secondly, alcohol taken immoderately exerts an effect on practically every organ of the human body, inducing or hastening death from many other causes than cirrhosis of the liver, besides rendering the alcoholic subject in particular much more prone to take infectious diseases and to develop diseases of the type known as arterio-sclerosis.

The Registrar-General in his latest Report states that:—

“There has been a very rapid decline in the mortality attributed to this cause in recent years, the death-rate, which reached 113 per million living so recently as 1900, now standing at 51 only. This rate, however, is higher than that of any year since 1908, the prosperity which has been enjoyed having apparently checked to some extent the remarkable fall in mortality attributed to alcohol.”

Diseases and Accidents of Parturition.

The deaths from this group of diseases amounted to 88 during 1914, an increase of 32 on the number recorded for the previous year. As previously remarked, one has here to consider not only the deaths but the number of women incapacitated for home and other duties by illness which in many cases might have been avoided by proper medical and hygienic treatment during pregnancy and confinement. In other words many a woman is rendered what has been termed a “gynæcological cripple” by the want of careful attendance at the time of childbirth.

Venereal Diseases.

Medical Officers of Health have not so far greatly concerned themselves with this group of diseases, for the simple reason that their knowledge of their existence has been solely derived from death certificates and even in those the real condition has been very frequently concealed for various reasons. But there are signs that before many years are over some control of the spread of these diseases will be ventured upon. Already in Glasgow and Birmingham public facilities are available for medical practitioners to assist them in an earlier diagnosis of syphilis by means of the Wassermann test.

Already too ophthalmia neonatorum is compulsorily notifiable throughout the country.

I am in entire agreement with Dr. A. K. Chalmers, of Glasgow, and Dr. L. C. Parkes, in the following suggestions made by them to the Royal Commission now sitting to investigate this question:—

Dr. A. K. Chalmers.

“(1) Local Authorities should offer to general practitioners, free of charge, a Wassermann or other approved test—

- (a) For diagnostic purposes in doubtful cases, and
- (b) To test the effect of treatment, and

“(2) They should also be prepared to provide hospital accommodation for the treatment of selected cases by Salvarsan or other method either—

- (a) In their own hospitals supported under the Public Health Act, or
- (b) In the wards of general hospitals, but preferably the former.

“Finally, in order to promote the more accurate recording of causes of death the Society is of opinion that medical registrars, who would regard certificate of death as a confidential document, are necessary.”

Dr. L. C. Parkes.

“Notification by medical practitioners to the Medical Officer of Health of the district in which a patient suffering from venereal disease resides should be made compulsory where the patient:—

- (a) Declines to avail himself or herself of medical or surgical treatment, whether such be given by the private medical practitioner or by the surgeon of the hospital or dispensary with whom arrangements have been made for gratuitous medical municipal treatment; or
- (b) Having commenced treatment, declines to continue such treatment and the medical practitioner undertaking such treatment is of opinion that the patient is still in a condition of health by which infection may be spread to other persons.

“The Local Government Board, under the powers conferred by Section 130 of the Public Health Act, 1875, as amended by the Public Health Act, 1896, should declare venereal

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diseases to be endemic diseases threatening the health of the population and should make regulations requiring all persons suffering from these diseases to submit themselves to medical treatment until cured and should impose penalties on persons so suffering who refuse treatment, or while under treatment and still in an infectious condition, take no proper precautions to prevent the spread of disease to other persons.

“Local Sanitary Authorities should be required to make arrangements whereby medical practitioners attending on persons residing in their districts can have discharges from sores, chancres or gleans examined microscopically free of charge to the patients and samples of blood examined for the Wassermann reaction in cases of suspected syphilis or to determine the continued presence of anti-bodies in the blood during the course of treatment. Arrangements should also be made by which a private medical practitioner can have the benefit of the advice in consultation of the municipal surgical expert, either at the hospital or dispensary, or at the patient’s own home, at any time that he considers such consultation desirable.”

The following pamphlet on this subject has been issued to soldiers by the Liverpool Medical Institution. I have personally addressed some hundreds of recruits on this and other subjects connected with the care of the body and the prevention of various conditions likely to unfit them for active service and have distributed this pamphlet widely. Large numbers of these recruits have specially thanked me for opening their eyes to the real truth about matters on which they had, up to the time of my speaking, only heard half-truths:—

SOME DANGERS A SOLDIER MAY AVOID.

— — —
“ ’TION !”

“You are going to fight in order that your children and your children’s children may enjoy the heritage of liberty. See to it that no action of yours will rob them of a heritage that is as priceless as liberty—the heritage of good health.

SOME DANGERS A SOLDIER MAY AVOID.

“From the moment that a young man puts on the uniform of a soldier he is assailed by new temptations, or by old temptations that attack him with reinforced vigour. One of the chief temptations awaiting him is that of sexual indulgence.

“He will be tempted by women ; and his endeavour to resist this temptation may give way before the chaff of some of his comrades. The recruit who best proves himself to be a man is he who, in the face of such tauntings, is true to the promptings of his conscience.

“He may be told that sexual intercourse is necessary for health. This is absolutely untrue. Abstinence from sexual intercourse does no man any harm.

“Indulgence in impure sexual intercourse wounds or kills more human beings in Great Britain every year than the total number of our soldiers are likely to be killed by German bullets in the present war.

“Our workhouse-hospitals and asylums contain many men whose old age of suffering is the harvest they reap from the wild oats sown in their youth.

“The dangers of impure sexual intercourse are many.

“The two chief diseases resulting therefrom are gonorrhœa and syphilis or the ‘bad disorder.’

GONORRHŒA.

“The chief symptom of this disease is a ‘running’ from the water-pipe. It usually appears about a week after intercourse. Under war conditions a case without complications is very rare. The chief complications are:—

1. Severe and intensely painful swellings of the testicles, which will absolutely prevent a man marching.
2. Abscesses in the groins, which will prove very weakening, and which will also prevent marching.
3. Gonorrhœal rheumatism, which may affect all the chief joints in the body, and which may render a man a permanent cripple. A soldier with gonorrhœa who develops gonorrhœal rheumatism is no longer of any value as a fighting man.
4. Stricture: a painful complication, which may prevent a man from passing his water naturally, and which may bring about his death by leading to abscesses in the kidneys.

“A young man who has had gonorrhœa may afterwards marry, but his disease may have destroyed his power of procreating children, and his wife will be childless. If he marry

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before he is completely cured, he will certainly infect his wife, who may die from serious complications. He is primarily responsible for her death.

“If he infect his wife and she bear children, the children may, soon after birth, develop acute inflammation of the eyes which may render them blind.

“What man worthy of the name could bear to see his first-born child blind and know that he was responsible for the eternal darkness that clouds its life?

“Is the game worth the candle? It is surely better to abstain from illicit intercourse than to run such risks, which threaten not only oneself, but one's future wife and children.

“An officer who exposes his men to unnecessary risks in battle is a bad soldier. A recruit who exposes himself to the risk of venereal disease is also a bad soldier; for if he contract the disease he is a wounded man and his military efficiency is enormously lessened.

SYPHILIS.

“Syphilis is a very serious disease and once acquired may haunt a man till he reaches his grave.

“The first symptom develops from a month to six weeks after sexual intercourse and consists of a sore. This is followed after some time by a rash on the skin, sores in the mouth, ulceration of the throat and falling out of the hair.

“Syphilis is a most destructive disease and may eat a hole through the roof of the mouth and destroy the nose or other features, so that the face is rendered hideous and repulsive.

“A man who has had syphilis may become blind in one or both eyes. He may develop paralysis, or his brain may become affected and he may die in a lunatic asylum. Syphilis is the cause of much insanity.

“A man who has had syphilis may die prematurely from disease of the heart or blood-vessels.

“If a syphilitic man marries a healthy woman he will almost certainly infect her. In consequence of this she may

VENEREAL DISEASES—PUERPERAL FEVER--APPENDICITIS AND
ALLIED DISEASES—VIOLENT DEATHS AND SUICIDES.

never bear any living children; or if she bears children which survive birth, they are likely to suffer for the sins of their father. They may be born idiots, or deaf, dumb and blind. They are always likely to be delicate and the features of many an innocent child tell the story of its father's wrong-doing.

"No protective measures to avoid the infection of venereal disease are reliable. A man can only be safe if he avoids illicit intercourse.

"Alcoholic intemperance lessens a man's power of self-control and in a large proportion of cases venereal disease is contracted while a man is intoxicated. Therefore be temperate.

"What King Solomon said of the prostitute is still true: 'She hath cast down many wounded: yea, many strong men have been slain by her. Her house is the way to hell, going down to the chambers of death.'

"If, with all these dangers before him, a man is fool enough to expose himself to infection and gets one or other of these diseases, he should at once 'report sick.'

Puerperal Fever.

The deaths from this disease numbered 14 during the year in the Administrative County, the number of cases of the disease notified to District Medical Officers of Health being 31 during the same period. The fatality rate is thus seen to have been a distinctly high one, namely, 46.6 per cent. Further allusion is made to this subject in the section dealing with the Midwives Act.

Appendicitis and Allied Diseases.

There have been 43 deaths ascribed to this group of diseases.

Comparisons with the records of previous years are not possible as the classification of causes of deaths were only altered in 1913 and this group of diseases does not appear in records prior to 1911.

Violent Deaths and Suicides.

These have numbered 342, viz.:—263 deaths by violence and 79 suicides.

Section IV.—Infectious Diseases.

Table III. at the end of this Report shews the number and nature of the cases of infectious disease notified in the Administrative County during 1914 and the numbers of such cases removed to Isolation Hospitals for treatment.

There were 5,175 cases of infectious disease notified to the several Sanitary Authorities in Cheshire during 1914. The nature of the notified cases is shewn in the following statement:—

	Boroughs.	Urban Districts.	Rural Districts.	Total.
Smallpox	0	0	0	0
Scarlet Fever	1209	755	569	2533
Diphtheria	196	412	257	865
Enteric (Typhoid) Fever ...	33	33	23	89
Erysipelas	162	165	54	381
Cerebro-spinal Meningitis...	0	1	3	4
Epidemic Poliomyelitis ...	4	6	3	13
Pulmonary Tuberculosis ..	312	351	193	856
Other forms of Tuberculosis	111	163	81	355
Puerperal Fever ...	14	10	7	31

The following Table shews the attack-rates of various infectious diseases upon the several districts in the County.

COUNTY OF CHESTER.	Estimated Population in the middle of 1914.	Scarlet Fever.	Diph- theria.	Enteric Fever.	Puer- peral Fever.	Ery- sipelas.
		Rate.	Rate.	Rate.	Rate.	Rate.
ADMINISTRATIVE COUNTY ...	622,494	4·09	1·37	0·13	0·05	0·60
BOROUGH & URBAN DISTRICTS—						
Alderley Edge ...	3,206	2·18	0·62	—	—	0·31
Alsager ...	2,780	2·88	4·68	—	—	—
Altrincham ...	18,060	2·33	0·28	—	0·06	0·61
Ashton-upon-Mersey ...	7,654	4·18	1·18	0·13	—	1·44
Bollington ...	5,219	3·07	1·72	—	—	—
Bowdon ...	3,108	0·32	0·32	—	—	—
Bredbury and Romiley ...	9,059	4·86	0·33	0·44	0·11	0·66
Bromborough ...	1,995	13·53	3·51	—	—	0·50
Buglawton ...	1,434	27·89	—	—	—	0·70
Cheadle and Gatley ...	10,415	5·18	—	—	—	1·34
Compstall ...	916	17·47	1·09	1·09	—	—
Congleton ...	11,460	17·28	1·75	0·09	0·17	1·05
Crewe ...	45,685	3·00	2·19	0·11	0·04	0·53
Dukinfield ...	19,546	7·52	0·46	0·26	0·15	1·02
Ellesmere Port and Whitby ...	11,897	3·28	1·26	0·17	—	1·68
Hale ...	9,303	2·36	0·43	—	—	—
Handforth ...	940	2·13	—	—	—	—
Hazel Grove and Bramhall ...	10,057	2·59	0·20	0·10	—	0·30
Higher Bebington ...	1,726	0·58	1·74	—	—	1·16
Hollingworth ...	2,613	9·18	0·77	0·38	—	0·77
Hoole ...	6,077	1·32	0·66	—	—	0·49
Hoylake and West Kirby ...	14,813	1·76	0·68	0·07	—	0·20
Hyde ...	33,606	13·36	0·54	0·15	0·03	1·93
Knutsford ...	5,908	—	1·02	0·17	0·17	—
Lower Bebington ...	12,156	5·02	4·94	0·33	0·08	1·07
Lymm ...	5,060	1·58	1·38	—	—	0·59
Macclesfield ...	34,840	3·73	1·03	0·29	0·11	0·43
Marple ...	6,706	1·79	—	—	—	0·45
Middlewich ...	4,969	0·20	0·60	—	0·40	0·60
Mottram in Longdendale ...	3,029	2·64	—	0·33	—	0·33
Nantwich ...	7,838	0·77	2·68	—	—	0·38
Neston and Parkgate ...	4,707	—	—	—	—	—
Northwich ...	18,287	0·98	0·87	0·22	0·05	0·33
Runcorn ...	17,570	4·10	2·73	0·23	—	1·25
Sale ...	15,787	3·29	1·90	0·19	0·13	0·32
Sandbach ...	5,764	2·60	0·87	0·17	—	1·73
Stalybridge ...	26,222	4·92	0·19	0·11	0·04	0·76
Tarporley ...	2,594	3·08	3·86	—	—	—
Wilmslow ...	2,352	1·80	—	—	0·12	0·48
Winsford ...	10,868	1·93	9·11	0·18	—	0·28
Yeardsley-cum-Whaley ...	1,702	1·76	0·59	—	—	—
RURAL DISTRICTS—						
Bucklow ...	23,616	4·87	0·25	0·04	0·17	0·30
Chester ...	12,834	2·42	1·09	0·08	—	0·31
Congleton ...	12,972	3·16	1·16	0·31	—	0·39
Disley ...	2,991	0·67	2·34	—	—	0·33
Macclesfield ...	16,851	3·50	1·13	0·06	0·06	0·12
Malpas ...	4,682	4·06	2·14	—	—	0·21
Nantwich ...	25,447	1·34	1·30	0·08	0·04	0·20
Northwich ...	23,571	2·38	2·08	0·04	0·04	0·34
Runcorn ...	29,465	3·02	2·27	0·07	—	0·54
Tarvin ...	13,331	2·18	0·38	—	—	0·23
Tintwistle ...	2,215	12·19	1·81	0·45	—	0·90
Wirral ...	20,308	3·84	1·23	0·44	—	0·25

Small-pox.

“Happily no case of this disease has been notified during the year. Dr. Bicknell (Acting Medical Officer of Health for Bromborough Urban District) reports that —

“One small-pox contact was notified from the Port Sanitary Medical Officer of Southampton. The house of address given was visited and information obtained that the person concerned had already left for Arran, but had been re-vaccinated and was in good health, which facts were communicated to the District Medical Officer of Health.”

Vaccination.

I quote a few remarks of District Medical Officers of Health on this subject.

CREWE MUNICIPAL BOROUGH.—Dr. MacMaster writes :—“I am obliged to the Registrar of the Sub-District of Crewe (Mr. T. W. Lovatt) for his kindness in supplying the following table :—

YEAR.		1903	1904	1905	1906	1907	1908	1909	1910	1911	1912	1913	1914
Births registered		1454	1425	1318	1260	1251	1174	1120	1112	1028	1012	1009	1034
Died unvaccinated		140	133	101	100	114	74	83	71	116	44	62	75
No. Surviving	Total	1314	1292	1217	1160	1137	1100	1037	1041	912	968	947	959
Successfully vaccinated	...	1060	1050	1014	922	860	706	623	581	538	553	492	453
Percentage successfully vaccinated	...	75	80	83	80	75	64	60	55	59	57	49	46
Certificates of insusceptibility	...	2	5	3	3	2	7	4	...	1	...	...	...
Certificates of exemption (Conscience Clause)		33	21	44	60	113	237	275	356	307	333	363	899
Percentage	...	2	1	3	4	9	20	24	32	33	34	38	40
Postponed by medical certificate	...	43	35	30	53	28	30	15	17	14	29	18	20
Removal to other districts		56	50	49	55	75	76	70	47	30	23	51	53
In abeyance	...	120	142	77	69	59	63	50	40	22	30	23	34

“The vaccination statistics record that the number of children exempted under the Conscience Clause of the Vaccination Act, 1907, still increases. From 9 per cent. in 1907 the exemption certificates have grown to 38 per cent. in 1913. One must emphasise the

VACCINATION—SCARLET FEVER.

danger created by this, as it is only by means of recent efficient vaccination that the community can hope to continue to be free from this disease."

DUKINFIELD MUNICIPAL BOROUGH.—The following is a copy of the return issued on February 6th, 1915, by the Registrar:—

Number of births—legitimate	...	497
illegitimate	...	8
		—————505
Insusceptible of vaccination	...	0
Successful vaccinations	... ..	145
Postponements by medical certificates	...	9
Removed from district	... ..	2
Conscientious objections	...	274
Births unaccounted for	... ..	8
Dead unvaccinated	... ..	67
		—————
Number of births	... ..	505
Illegitimate deaths under one year	..	5

I hereby certify this to be a true copy.

E. HEWITT, Registrar,
per pro A. HEWITT.

CHEADLE AND GATLEY URBAN DISTRICT.—“ I have been unable to get the exact number of children successfully vaccinated in the district, but the vaccination officer informs me that it is fewer in proportion to the number of births than in the previous year, as the number of exemptions is still increasing rapidly.”

NESTON AND PARKGATE URBAN DISTRICT.—“The following table gives the number of conscientious objections to vaccination in the years 1909-14 inclusive, in the Neston Urban Area and in the Neston Registration District, which includes Neston Urban.

	1909.	1910.	1911.	1912.	1913.	1914.
Neston Urban	4	6	2	6	11	6
Neston Registration District	7	12	8	13	13	11

Scarlet Fever.

This disease was notified in 2,533 instances during 1914. The attack-rate was highest in the following areas:—

SCARLET FEVER.

		Rate per 1,000 of population.
Buglawton U.D.	...	27.89
Compstall U.D.	...	17.47
Congleton M.B.	...	17.28
Bromborough U.D.	...	13.53
Hyde M.B.	...	13.36
Tintwistle R.D.		12.19
Hollingworth U.D.	...	9.18
Dukinfield M.B.	...	7.52

The remarks of the District Medical Officers of Health on this infectious disease are as under:—

CONGLETON MUNICIPAL BOROUGH.—“This disease became prevalent in January and continued so till about the middle of June, when there was a decided falling off in the number of cases, giving hope that the outbreak was coming to an end, but early in July the disease again made progress and continued to do so up till nearly the end of the year, when there was another improvement. In the last half of the year there were 150, compared with 56 in the first half. The type of the disease was generally very mild and a considerable number of children, who were only detected in the desquamative stage, had never been really ill or suspected by their parents of having had anything the matter with them and went about as usual, mixing with other children in the streets and schools when in an infectious state. The age incidence seemed to be higher than is usual in such outbreaks and the large number notified as being over 13 years of age was remarkable.”

DUKINFIELD MUNICIPAL BOROUGH.—“One hundred and forty-three cases were notified, with five deaths, compared with five deaths in 1913, one in 1912, none in 1911, four in 1910, two in 1909, five in 1908, five in 1907, nine in 1906, three in 1905, six in 1904, three in 1903, six in 1902, seven in 1901, five in 1900 and six in 1899.

“The attacks generally have been of a mild character. It is difficult to know how to eradicate a disease the nature and cause of which is so little understood to-day. Some years ago the late Medical Officer of Health for Salford predicted that Isolation Hospitals would kill the disease after a very short period. In districts where these hospitals are used to a very large extent the disease still continues to thrive and I am informed that it takes, when the cases are congregated together, as in a Fever Hospital, a much more virulent and sceptic type. On the other hand, in our cottage homes isolation and disinfection are not only difficult but impossible. The problem, therefore, is a hard one indeed and as yet it remains unsolved. I do believe, however, that strict

attention by frequent visitation on the part of the Sanitary Officials to the infected houses will do some little to prevent the spread of the disease. My belief is that the scarlet fever germ lives and thrives in this district and is readily conveyed by infection. The germs, which are found in the bran-like scales given off by the skin, readily attach themselves to clothing and the infection can be retained for months, long after the final case existed. So that isolation is not sufficient unless combined with thorough and careful destruction of the germs of infection in order to prevent the spread of the disease.

“I was much struck on reading an article in the “British Medical Journal,” some time in 1909, on the home treatment of scarlet fever. As the prophecies and anticipation as regards hospital treatment in these cases had not only not been realised but had in no sense diminished the number of cases notified in any degree, I determined, with the consent of my authority, to carry out in our district the treatment of scarlet fever cases at home on the lines suggested by Dr. Robert Milne, Medical Officer of Dr. Barnardo’s hospitals and homes (the writer of this article).

“Our method of procedure was as follows:—(1) We requested the medical men of the town to meet the Sanitary Committee and discuss the treatment. This was well gone into and they all agreed to assist the authority in carrying it out as effectually as possible. Every pressure was laid on the importance of having a capable nurse to follow up each case and see that the treatment was carefully and effectually carried out. This suggestion, unfortunately, the Committee could not see their way at the time to adopt. Personally, I feel convinced that had this been done our results would have been even more satisfactory than they have proved to be.

“(2). Instructions were given to the parents of infected children as to treatment. In most cases these instructions were, so far as we know, fairly satisfactorily carried out. At first we desired the children from the infected home to attend school; other parents, however, objected and afterwards we decided that they should not be allowed to go to school. The eucalyptus oil, which is provided free by the Corporation, to be used twice daily for the first four days and afterwards once a day until the tenth day. The effect of this is to destroy the germs of infection on the skin right from the start of the disease and not to wait until these germs have become disseminated, not only in the sick room and house, but also in the air outside the home. If this is done effectually there is no risk of the other members of the family

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living and sleeping even with the infected person and the danger of spreading the disease is, of course, minimised. The throat treatment should be carried out also right from the commencement of the illness, very frequently for 24 hours ; afterwards, at the discretion of the medical attendant.

“ We commenced our treatment in July, 1909. Up to the end of June 82 cases of scarlet fever had been notified and as the maximum, as a rule, takes place in the Autumn and the minimum in March, I expected a much larger number of cases in the second half of the year. On the other hand only 64 cases were notified in the second half of the year. What has been our experience of these cases ? Since 1901 we have the following notifications of scarlet fever :—

1901	1902	1903	1904	1905	1906	1907	1908	1909	1910	1911	1912	1913	1914
60	120	30	111	47	95	169	112	146	52	26	16	105	143

“ This is an average for the past 14 years of 78 cases. Let me take first of all the year, or rather the second half of the year 1909, when 64 cases were notified. In four houses duplicate cases occurred and were notified at the same time, all being infected at once. In four other houses cases were traced to infection from previous cases in the same home. In three of these four houses, through carelessness and laziness, the instructions were not properly carried out and in the fourth house the drains were in an unsatisfactory condition and had to be reconstructed and properly connected to the sewer. At the end of the first half-year's working the general opinion among the medical men of the district was that they could not rely on the treatment—particularly the throat application—being carried out effectually. To do so a capable nurse should be employed, but considering the large number of cases (82) prior to the treatment we were better off than in the earlier part of the year. It was satisfactory to know that in so few houses, even considering the want of real supervision as regards the treatment, second cases occurred. I then advised a continuation of this method of treating scarlet fever for a further period of twelve months, if possible, under supervision.

“ During the year 1910 the Inspector made a special point of supervising the treatment of these cases and I have pleasure in submitting a detailed statement of the 52 cases which were notified during the year. In six houses duplicate cases occurred, including 14 cases in all. In two houses in one case two, in the other three, took the infection at the same time and were notified together. In a third house two cases occurred within five days

of each other. Here the treatment was not well carried out at first, as there were other three children in this house who, after treatment was thoroughly attended to, did not take on the disease. In a fourth house the treatment was not carried out at all at first until three children had become infected. In another house the interval between the first and second case notified was nearly seven weeks. In the last house there is considerable doubt as to the second case being scarlet fever, as the house was disinfected nine days after it was notified. In these houses where the 52 cases occurred 135 other children were in close contact with the infected person.

“During the year 1911 26 cases only were notified, a decrease of 26 on the previous year. In two houses duplicate cases occurred, including nine cases in all. In one house two cases of fever were notified on the same day. In 1912 16 cases only were notified—ten less than the previous year—the lowest number recorded in the borough. In two houses there were duplicate cases and again, after 15 days, a case was notified next door to an infected house. In one of the above houses both cases were notified on the same date. In the other case the house was disinfected five days after notification.

“In 1913 there was an epidemic. Not only Dukinfield, but all the surrounding towns were invaded by this disease. At all events, we were no worse off than our neighbours. One hundred and five cases were notified during the year—four in the first quarter, seven in the second, 41 in the third and 53 in the fourth—so that in the first half of the year there were eleven cases and in the second half 94. In eight houses more than one case of scarlet fever was notified. In five of these houses duplicate cases occurred, which were notified on the same day. In one house three cases were notified at one time and one eighteen days after. In another, two other cases occurred fifteen days after the first case. In another house two cases were notified at once, two others fourteen days later and a fifth fourteen days after the second notification.

“In 1914 the epidemic of 1913 continued. In thirteen houses more than one case of scarlet fever was notified out of a total of one hundred and forty-three cases in all. In eight of these houses duplicate cases occurred which were notified on the same day. In one house two cases were notified on the same day and another two months later. In another house two cases were notified three weeks and three months respectively after the first. In one instance two cases were notified on the 10th and 16th of the same month and in two other houses there were duplicate cases,

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one a week after and the other a month after the first case notified. I have made an analysis of the cases during 1908 before this treatment was adopted and I find that out of 112 cases notified 38 were duplicate cases. I have not been able to go into previous years, but I have no doubt that a like proportion of duplicate cases occurred. On grounds not only of efficiency, but of economy, I strongly advocate the continuance of this method of treating scarlet fever at home. Not only is the expense of maintaining a hospital for these cases saved, but if the treatment is really carried out from the onset of the disease strong disinfection and destruction of clothing, books and other materials are unnecessary. In very few cases was disinfection of the house afterwards carried out that was at the wish of the people themselves residing in the houses. In most cases no disinfectants at all were used. I am so satisfied with the results of this treatment during the past four and a half years that I recommend its continuance. At the same time, if the Council can see its way to provide a thoroughly reliable nurse to see that it is properly carried out in every case, I am confident that the money will be well spent and the risk of duplicate cases nullified."

HYDE MUNICIPAL BOROUGH.—"Twelve deaths were caused by scarlet fever during the year. This disease assumed epidemic proportions during the whole period, most of the cases being of a mild type. Of the 471 cases notified, 445 were isolated in hospital. The schools were kept under observation and periodically disinfected. Three children were found attending school whilst suffering from the disease, one at Flowery Field and two at Gee Cross Council School. No school had an undue proportion of cases."

STALYBRIDGE MUNICIPAL BOROUGH.—"During the year 124 cases of scarlet fever were notified, as compared with 41 in 1913 and 58 in 1912.

"Fifteen cases were sent to the Borough Hospital, Ashton-under-Lyne. The disease was generally of a mild type and only three deaths resulted from it. Scarlet fever in a mild form is a by no means easy disease for a Sanitary Authority to control, because (1) it is lightly esteemed by the inmates of an affected household, who, in some instances, even doubt its existence amongst them; (2) many cases are never detected until desquamation ('peeling') begins, with the result that the sufferer has all the time been unwittingly spreading the disease to others; (3) the impossibility in many instances of getting anything like satisfactory isolation persistently carried out until all risk is passed; and (4) the fact that some few cases are never even suspected by the

sufferer or his friends and only come to the notice of a doctor if some untoward circumstance develops later on."

LOWER BEBINGTON URBAN DISTRICT.—"There were 62 cases of scarlet fever notified, with no marked epidemic, but of steady prevalence, in each month of the past year. The disease was of mild type and death occurred in one case only, that of a very young child."

BOLLINGTON URBAN DISTRICT.—"At the beginning of April your Medical Officer was asked to see a child in Higher Lane, Kerridge, for suspected measles. The child was found to be suffering from scarlet fever and on enquiry being made it was elicited that a child had recently been brought from Manchester and that the child's brother had just returned from Monsall Hospital. On asking to see the child, who was at the time playing with other children in the road, it was found to be desquamating freely. These two cases were immediately sent to the Isolation Hospital. Following on these cases, three more children living in the same neighbourhood developed the disease and were also sent to the Isolation Hospital. The cost to the district for isolating these five cases was over £40. About the same time one other isolated case appeared in Shrigley Road.

"A second epidemic of scarlet fever broke out towards the end of the year. Evidently at this time some extremely mild cases had been going about with very little symptoms of illness until later on peeling was found. In one family where a child was ill it was found that the other members were peeling. In this way the disease seems to have been spread both by means of school and very probably of picture palace. The characteristic of this attack seems to have been the very slight and rapidly disappearing rash and general mildness of the disease. At the same time one case was of the 'malignant' type with the unfortunate but usual result. It might here be mentioned that another case of this type occurred in the adjacent Rural District within the same week. The duration of illness in these two cases seems to have been only two days."

BREDBURY AND ROMLEY URBAN DISTRICT.—"A few cases arose in nearly every month up to September. These were notified early and were promptly dealt with and there was no extension of infection. In the last three months there were two groups of cases, in each of which an unrecognised case was discovered attending school and the consequence was, several children were infected in quick succession. As soon as these were found out and isolated, the number of new cases fell away rapidly. The

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disease has been of such a mild type that parents who have not seen it before are liable to fail to recognise it, especially in children old enough to wash and dress themselves, as the rash does not show up well on the face and hands and, if exposed to the cold, is easily overlooked. The other symptoms not being severe, are also overlooked, or ascribed to the child being 'out of sorts.' Later on, when desquamation occurs, as it did in the two cases mentioned above, I have found a history of all the classical symptoms having been present, but as the child 'did not seem bad enough,' these had not been interpreted as due to scarlet fever."

BUGLAWTON URBAN DISTRICT.—"The first case was notified in April, and there were only a few cases from then till the beginning of June, when a rather severe outbreak began and did not come to an end till near the close of the year. The type was mild and only one death occurred. The first cases were sent to the Isolation Hospital, 13 being sent altogether and the school was closed for 3 weeks, but this did not seem to have any influence in checking the disease. All the houses were disinfected and the bedding stoved."

CHEADLE AND GATLEY URBAN DISTRICT.—"Fifty-five cases of scarlet fever were notified during the year, as compared with 25 in 1913. Thirty three cases occurred at the Public Institutions in the district, viz.:—Eighteen at the Warehousemen and Clerks, Schools; 12 at the Barnes Convalescent Hospital; and three at the Royal Lunatic Hospital; 22 cases belonging to the district proper. The disease in most cases was of a very mild type, one case proving fatal. In nearly all the cases there was great difficulty in tracing the source of infection and in most cases was thought to have contracted the disease outside the district.

"There were no instances where the members of the family had been attacked after a patient has returned from the hospital. The cases at the Warehousemen and Clerks' Schools began to be notified soon after the children had returned from their Christmas holidays. At first the Medical Officer could not account for the outbreak, but afterwards found out that one of the children had come from a house where there was a case of scarlet fever and was peeling. Since June no cases have been notified from this institution. The large increase in the number of cases notified from the Barnes Convalescent Hospital may be accounted for by the fact that the disease has been very prevalent in the City of Manchester. I was unable to ascertain the origin of infection in the cases which occurred at the Royal Lunatic Hospital. All possible precautions were taken and the results were most satisfactory.

Twenty-seven cases were sent to Monsall Fever Hospital, including 12 cases from the Barnes Convalescent Hospital. No cases were sent either from the Warehousemen and Clerks' Schools or the Royal Lunatic Hospital."

COMPSTALL URBAN DISTRICT.—"A slight epidemic of scarlet fever broke out in October, 12 cases being reported. In January a case was reported on Werneth Low, which is the highest part of the district and adjacent to the Hyde Borough. In May and June two cases occurred at a farm on Werneth Low. These three cases attended school in the Borough of Hyde, where there was an epidemic of scarlet fever and there was little doubt that the children contracted the disease from school. The two at the farm were isolated at Hyde Hospital and strict orders given with regard to milk. The outbreak in October was mild and all cases were isolated at home and all the children anointed with eucalyptus oil. The affected children were isolated for six weeks. There were no return cases."

ELLESMERE PORT AND WHITBY URBAN DISTRICT.—"Thirty-six cases of scarlet fever occurred as against 54 last year. Twenty-eight were removed and treated in the Isolation Hospital. One death, that of a young child, took place owing to measles and other complications. The great majority of the cases were of a very slight character and in several instances nothing was noted by the parents until the children were peeling. Disinfection was strongly applied, and sanitary defects noted and remedied with all possible speed."

HOLLINGWORTH URBAN DISTRICT.—"From April to the end of September 24 cases of scarlet fever were reported. This epidemic was of a very mild character. I decided to adopt the eucalyptus oil treatment and the Council supplied this gratuitously to every patient. I strongly advocate this treatment and consider any other disinfectant unnecessary."

HOYLAKE AND WEST KIRBY URBAN DISTRICT.—"Twenty-six cases were notified, against 39 in 1913, 92 in 1912 and 155 in 1911. One case occurred in the Convalescent Home, West Kirby, where the patient had been admitted but a few days previously. There was only one death during the year from scarlet fever. In this case the patient was working in a Liverpool shipping office and death occurred on the fifth day of the disease. The majority of the cases were of a mild type and were brought about either by visiting neighbouring towns or association with playmates. After removal or recovery of the patients, vigorous

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room disinfection is practised and the walls are stripped. Four of the above cases were notified by the School Medical Officer and excluded from school, with the hope that parents will obtain the necessary treatment."

LYMM URBAN DISTRICT.—"The scarlatina cases were all light ones and occurred scattered in districts quite apart throughout the year. Two were in one family at the same time. Two were isolated in the hospital at different times. They were all seemingly caused by separate infections from outside districts. During the year scarlatina has been epidemic around us. Generally speaking, scarlatina has now so altered from the old and more severe type that it is exceedingly difficult to diagnose as such till the typical desquamation has appeared. This may be rarely delayed as long as three weeks. Seeing that serious complications and sequelæ might occur in a missed case, or that such a case might initiate a serious epidemic, our practice is to notify on a suspicious rash alone, keep under reasonable isolation and observation for three weeks and make a definite scarlatinal peeling the diagnostic factor upon which further treatment and isolation shall depend. The object in view and I believe the practical result, more than outweigh the temporary inconvenience to the individual and the expense of negative notification."

MARPLE URBAN DISTRICT.—"The scarlet fever cases were of an extremely mild type and great difficulty was experienced in stamping it out owing to the trouble of finding them out early and not being able to isolate them. Some cases were imported. Three were sent to hospital and the others isolated at home. The schools were fumigated and the houses thoroughly disinfected. Dr Parks' treatment was used: Eucalyptus oil and disinfectants, with a circular giving instructions, were given in each instance by the Inspector. No deaths occurred throughout the year. One return case was discovered."

MOTTRAM URBAN DISTRICT.—"Four cases occurred in Broadbottom and were notified in February, April and October. Two cases were contracted at Gorton. One boy worked there and the other case was that of a child who was not well and sent in the country for a change. In a short time the child commenced to desquamate, showing that she must have suffered from scarlet fever, which had not been observed. Another case occurred in a man who worked in a shop in Hyde. Near his shop scarlet fever was very prevalent, so the probabilities are he contracted the disease whilst at his work. I was unable to trace the source of infection in the other case. Three mild cases occurred in Mottram, two probably contracted in Hollingworth."

WILMSLOW URBAN DISTRICT.—“Of the scarlet fever cases, five were removed to Monsall. All recovered. Three cases occurred in one house, two in another and two in a third. In the first series, two cases developed within a few days of each other and the third seven weeks after the second. This last may possibly have been a ‘return’ case, as six days previously the first child affected returned from Monsall, though apparently free from infection. In the second series, only a few days separated the cases; whilst in the third there was an interval of five months. The last appears to have been due to fresh infection from outside the district. In some of the remaining cases the source of infection appeared to be outside the district, whilst in others it could not be traced.”

BUCKLOW RURAL DISTRICT.—“There were 119 cases. These figures look serious until analysed, when they are seen to be of less importance. Eighty-three were removed to hospital. There were no deaths among them. (The death shown in Table 28 was a death belonging really to 1913). In the first place, 16 townships had no cases at all. In Styal 17 cases occurred in the cottage homes (where there are 510 pauper children from Manchester), but none among the ordinary population. In Northen Etchells, Aston, Carrington, Peover Inferior and Peover Superior there was only one case each; in Mere, Rostherne, Millington and Baguley only two cases each; High Legh had 14 cases, but only five houses involved; Dunham had only eight cases and Timperley only 16 (these being two of the three largest populations); so that all the cases are accounted for, in ordinary circumstances, except 51 which occurred in Northenden. These formed two well marked groups, 34 in five months, January to May and after a three months’ interval 17 in 4 months, September to December. In at least half-a-dozen cases the correctness of the diagnosis was challenged, and in several others the notifications were only sent in on account of peeling being observed. March (15 cases) was the only month in which public attention was aroused, and some uneasiness felt. Measles also was somewhat prevalent in the spring and Mr. Edward Crickmore was employed as an Assistant Inspector for a considerable time. An unusually severe epidemic of scarlet fever occurred in Manchester in 1914, and I never had any doubt that the trouble in Northenden was directly connected therewith, intercommunication being very free.

Mr. Metcalf adds:—

‘One thousand five hundred and ten visits were made in
‘connection with infectious cases, most of them being
‘in Northenden on the outbreak of scarlet fever and
‘measles.

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‘This work could not have been carried out without the
 ‘extra assistance which was readily provided by the
 ‘Council. Careful inquiries were made into all cases
 ‘occurring during the year with a view to tracing their
 ‘origin.

‘The township of Northenden was the most unfortunate
 ‘during the year and this was due to the close proximity
 ‘to Manchester and the fact that most of the inhabitants
 ‘work in that city. The scarlet fever outbreak in
 ‘Northenden was entirely due to the epidemic in Man-
 ‘chester.”

MACCLESFIELD RURAL DISTRICT.—“Fifty nine cases were notified, 32 occurring in the township of Poynton during the months of September, October and November. The source of this outbreak was not traced and school attendance was undoubtedly the means of distribution. There was reason to believe that some of the cases in Eaton, Hurdsfield and Rainow had been introduced from adjoining Urban Districts.”

TINTWISTLE RURAL DISTRICT.—“Twenty-six cases were notified during the year, with one exception all in the Tintwistle portion of your district. Two cases were notified in March and occurred in a house where there had been a case of diphtheria. A child was sent to Dukinfield to escape diphtheria and on returning home commenced with scarlet fever and infected another child in the house. The chief outbreak seems to date from May 27th, when a case was reported from Lane End, Tintwistle. Shortly afterwards the doctor in attendance discovered that other members of the family had suffered from it and were desquamating. The children went to the C.E. School. I went to the C.E. and Independent Schools and examined all the children who had suffered from sore throats. The result of my examination was that there were children attending the C.E. Schools who were desquamating and had undoubtedly suffered from a mild attack of scarlet fever. During the quarter ending September 30th, four cases were reported from Tintwistle and three from Woodhead. The last case reported from Tintwistle was on August 19th and from Woodhead School, September 8th.”

WIRRAL RURAL DISTRICT.—“Seventy-seven cases were notified, affecting 13 townships, 53 receiving hospital treatment. Table II. shows the age period and districts in which the sickness occurred. Eastham had a total of 33 cases, the majority of which occurred at school age and in consequence the school was closed for two weeks. Special attention was paid to every case, together

with careful and immediate disinfection of rooms. There was no reason to suspect the milk supply as being responsible for spreading the disease. The houses affected were in close proximity to each other and no doubt by close association infection was carried from house to house."

Diphtheria.

Altogether 865 cases of diphtheria were notified in the County area during 1914. The highest attack-rates were in the following districts:—

			Rate per 1,000 of population.
Winsford U.D.	...	...	9.11
Lower Bebington U.D.	...	...	4.94
Alsager U.D.	...	...	4.68
Tarporley U.D.	...	...	3.86
Bromborough U.D.	...	...	3.51

The following are the comments of the District Medical Officers of Health on this matter. It is pleasing to note the growth of the free distribution of antitoxin for the treatment of suitable cases of this disease.

CONGLETON MUNICIPAL BOROUGH.—"Although the number of cases was greater than last year there was not any definite outbreak and it could not be said that one district was more affected than another and there was only one instance of two cases in the same house, notwithstanding, there were generally several inmates and contacts. The sanitary state of the houses was not always satisfactory, but in connection with most of the cases there was not much to complain of in this respect and considerations of this kind did not seem to afford any information as to the occurrence or causation of the disease. All the houses where infectious diseases occurred were disinfected and the schools and some of them several times. A considerable number of bacteriological examinations were made and the exact number and the nature of them will be found in the accompanying report by Professor Delépine. Taking it roughly, the results negatived the suspicions which led to the examinations being made in eight instances to one and it is thought that in suspected cases of diphtheria, especially, more frequent examinations might result in fewer cases being notified. For some time, ulcerated throats have been common and, no doubt, difficulty is sometimes experienced in determining their character from their clinical features alone and it is of some importance to avoid the expense and trouble of dealing with cases as diphtheria when they are not of that nature."

DIPHTHERIA.

CREWE MUNICIPAL BOROUGH.—“The cases notified numbered 101, the deaths were 2, the case mortality being 1.98. The number of cases removed to hospital was 84.

“Cases and deaths in previous years since 1900:—

		1902	1903	1904	1905	1906	1907	1908	1909	1910	1911	1912	1913
Cases	...	136	150	53	47	32	37	39	121	290	86	93	157
Deaths	...	28	18	3	4	4	6	8	7	32	5	8	9
Case													
Mortality %		20.5	12.0	5.6	8.5	12.5	16.2	20.5	5.7	11.0	5.8	8.6	5.7

“The number of cases notified was 56 less than in 1913 and 11 more than the average yearly number reported since notification began. The monthly incidence of the disease was high in February, October and November. The age distribution of the cases and deaths was as follows:—

Age.	No. of Case.	No. of Deaths.	Case Mortality.
Under 5 years	... 17	... 1	... 5.8
5-15	... 65	... 1	... 1.5
15-25	... 12	... —	... —
25-45	... 7	... —	... —
45-65	... —	... —	... —

“The case mortality was 8.37 per cent. lower than the average case mortality of the previous 10 years. A death-rate of .04 and a case mortality of 1.98 are the lowest recorded in the town from this cause. The severity of the infection varied considerably and while this was a factor governing the results, the measures adopted to treat and prevent the disease have been very satisfactory. The early free use of large doses of anti-diphtheritic serum and good nursing, coupled with the detection of mild and ‘caries’ cases have all contributed to the improvement. During the year the nose and throat swabs examined numbered 1,142. So far as time permits swabs are dealt with in the Municipal Laboratory and the remainder are sent to the Public Health Laboratory of Manchester University. The numbers and results in each case were:—

	No. Examined.	Result.	
		Positive.	Negative.
Municipal Laboratory	... 964	183	781
Manchester University	... 178	27	151
	1142	210	932

“The swabs examined in the Municipal Laboratory have been classified under throat and nose as follows:—

	No.	THROAT.		No.	NOSE.	
		Pos- itive.	Neg- ative.		Pos- itive.	Neg- ative.
Swabs from hospital cases ...	295	78	217	227	45	182
Swabs from suspected or actual cases at home ...	85	13	72	12	1	11
Swabs from home contacts ...	127	16	111	91	24	67
Swabs from school contacts ...	70	2	68	57	4	53
	<hr/> 577	<hr/> 109	<hr/> 468	<hr/> 387	<hr/> 74	<hr/> 313

“From returns prepared by the Local Government Board it is now possible to compare the local sickness rate from diphtheria with the rates in other parts of the country since 1911:—

Sickness Rate from Diphtheria per 1000 of the Population.					
	1911.	1912.	1913.	1914.	
Crewe ...	1.89	2.14	3.51	2.19	
Cheshire ...	1.17	1.16	1.57	—	
England and Wales ...	1.32	1.24	1.39	—	

“In the report for 1913 the preventive measures taken were fully discussed and the procedure then reviewed has been carried out as a routine. The services of the temporary Assistant Medical Officer were continued until May, 1914, and the large number of swabs dealt with in the Municipal Laboratory were examined by him. That the means used to prevent the disease and reduce the mortality have produced good results is clearly shown by the low death-rate and case mortality, both of which are tangible evidence that the expenditure undertaken by the Health Committee was in the best interests of the citizens and accomplished its purpose.”

DUKINFIELD MUNICIPAL BOROUGH.—“During the past year the death-rate from diphtheria was 20 per cent. It is remarkable that during the past 12 years the deaths from this fatal disease have been so few, there being only 35 deaths out of about 248 cases. The cases of mortality in previous years have been as high as 30 per cent. and upwards. I attribute this to the fact that in most cases anti-diphtheritic serum is used very early on in the illness and with excellent results, as there is no reason to believe that the attacks themselves are less severe. The Sanitary Committee supply the serum free of charge in all cases. The vitality of the micro-organisms of the disease is great, so much so that they can survive long

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periods of time when attached to, or hidden away in clothing. This disease is not a filth disease and is not conveyed by water. It is undoubtedly connected with the prevalence of sore throats and these throats seem to form a suitable resting place for the germs. The disease is not spread readily by the air for long distances and it is in all probability conveyed by actual infection from clothing and persons in crowded rooms or schools."

HYDE MUNICIPAL BOROUGH.—"Four deaths were registered from this cause, giving a death-rate of .11 per 1,000 of the population. The number of deaths and death-rate were similar in 1913. Twenty-three cases were notified, seven of which were isolated in hospital. Swabs were taken in six cases for bacteriological examination, one only giving a positive result. Antitoxin is supplied free of cost, for use in the borough."

LOWER BEBINGTON URBAN DISTRICT.—"There were 56 cases notified; of these several were doubtful and eventually proved negative. Forty cases occurred amongst school children and were distributed as follows:—

Church Drive School	...	...	16 cases.
Park Road School	...	...	18 „
St. John's School	...	...	5 „
New Ferry School	...	...	1 case.

"This was really the conclusion of last year's outbreak, the number of cases gradually diminishing from the beginning of the year and ceasing in May. Death occurred in two cases."

BOLLINGTON URBAN DISTRICT.—"An epidemic of diphtheria occurred during the early months of the year. The cases were not limited to one area, nor to the children of one particular school. The milk was supplied to all but one of the affected families by one dealer. He, however, obtained his supply from different farmers and it was impossible to trace the cause in this way. In April another case was notified. This patient had most probably contracted the disease in a neighbouring town."

CHEADLE AND GATLEY URBAN DISTRICT.—"There were no cases notified during the year as compared with nine in 1913 and seventeen in 1912. In November there were a number of cases of bad sore throats of a very suspicious character

but a bacteriological examination gave the negative result. Six swabs were sent to be examined and in each case the result was negative. At the beginning of the year 1906 your Council instructed me to keep a supply of antitoxin which could be used in necessitous cases. This supply is now kept at the Council Offices where it can be obtained at any time. Antitoxin has been used on a few occasions in very suspicious cases before a bacteriological examination had been made."

ELLESMERE PORT AND WHITBY URBAN DISTRICT.—"There were 15 cases of diphtheria compared with 43 in 1913. Seven were removed and treated in the Isolation Hospital, one case proving fatal. The deaths from this disease number three. A close investigation was made of the circumstances of every case and patients isolated at home were kept under observation. Reference has already been made under the heading of water supply to a state of affairs which is a general menace to health and ought not to be allowed to persist. Many sore throats shewed the pseudo-diphtheria organism to be present. The crowded state of the houses and a failure to recognise the gravity of the condition early enough were also factors in producing a fatal issue."

HOYLAKES AND WEST KIRBY URBAN DISTRICT.—"Notifications were received of ten cases of diphtheria and seven of the patients were treated in the Isolation Hospital. There were two cases at the Children's Convalescent Home, West Kirby, one from Liverpool, the other from Birmingham; both were removed to the Clatterbridge Isolation Hospital as a matter of urgency and both recovered. One outbreak was that of two servants at a Boys' school. Further swabs were taken from two other sore throats in this establishment, with negative results. Death occurred in three cases, one of an infant before the case was notified. Antitoxin was administered to the members of the family (parents and five children), who had been in close association with the infant. Another a child from Bacup, whose illness commenced the day after his arrival in West Kirby, where he had come for a visit with his parents and four other children. The third was a child aged six years, resident of West Kirby. There were nine outbreaks with ten cases, but no spread was traced in any instance beyond the house primarily attacked. The house drains were tested in every case, minor defects only were discovered and speedily remedied and in cases where the infected person was a visitor to the district the Medical Officer of Health concerned was supplied with full information for investigation purposes."

DIPHTHERIA.

KNUTSFORD URBAN DISTRICT.—“Two cases occurred on September 28th and October 3rd respectively, then one (in Tabley Superior) on October 23rd and then four in the first fortnight in November. Most careful and exhaustive enquiries were made, but nothing was discovered. Four of the cases were removed to hospital. The milk supply seemed to be a possible link, but was rejected on investigation. There were no deaths. Four of the cases were bacteriologically confirmed.”

LYMM URBAN DISTRICT.—“With regard to diphtheria the epidemic of 1913-1914 has resulted in the formulation of a method of procedure which seems satisfactory. From every suspicious case the medical attendant sends a swab to the Laboratory of the Manchester University. If the diagnosis is positive and no symptoms are present at the end of three weeks a second swab is sent and thence afterwards, if needed, every fortnight until a negative result is obtained. Where indicated a swab is also taken from nose, ears, or any discharging mucous surface. Professor Delépine kindly forwards to me a tabulated report of the examinations made at his laboratory for this district. For diphtheria for 1914 27 examinations were made, of which 11 were positive.”

RUNCORN URBAN DISTRICT.—“As regards diphtheria cases during the latter half of the year, the nature of those cases which have been treated at the hospital (and a few outside cases) has been verified or otherwise by bacteriological examination of the throat swabbings. Only in one hospital case did the bacteriological examination fail to confirm the clinical diagnosis. It is to be remarked that, speaking generally, the clinical picture which cases of diphtheria present nowadays is very much less severe than in years past; in fact, many cases, especially mild cases, can only be diagnosed by the aid of bacteriological investigation. It is therefore suggested that swabbings of every case of sore throat, concerning which medical advice is sought, should be bacteriologically tested; and furthermore, bacteriological examinations should be made of swabbings of throats of all diphtheria cases, during convalescence, before such cases are declared no longer *infective* for those with whom they come in contact.”

SALE URBAN DISTRICT.—“It is interesting to note how the cases of scarlet fever and diphtheria increased from quarter to quarter:—

	Scarlet Fever.		Diphtheria.	
March quarter	...	11	...	2
June ,,	...	9	...	2
September ,,	...	16	...	11
December ,,	...	27	...	22

"It is somewhat difficult to account for this rise in the number of scarlet fever and diphtheria cases, but the most probable cause is the peculiar kind of weather in evidence during the last months of the year, being unsettled, cold and wet. As regards the diphtheria cases, I have come to the conclusion that some of the cases notified as diphtheria were not really true diphtheria, as the test for the diphtheria bacillus was only carried out in less than half of the cases notified. Efforts were made to see if the milk supply was at fault, but in no dairy or farm in the district was there any case of diphtheria in man or cow and most of the families affected had milk from different milkmen and were not supplied by one dairyman; also, the cases were dotted about in the district. There was one death from scarlet fever and one death from diphtheria."

WINSFORD URBAN DISTRICT.—"This epidemic which commenced in 1906 or 1907, lasted three or four years, died away for two years and has since blazed up furiously for three years, is worthy of detailed study, for its cause and its progress remain nearly as much a mystery, after eight years' investigation, as at first. The facts, beginning with 1907, are embodied in tabular form thus:—

Year.	Cases.			Removed to Hospital.			Deaths in Hospital		Deaths at Home.		Total deaths	Case Mortality per cent.
	O.	W.	T.	O.	W.	T.	O.	W.	O.	W.	T.	
1907	12	8	20	9	3	12	2	1	1	1	5	25.0
1908	23	6	29	19	4	23	2	—	1	1	4	13.8
1909	22	3	25	9	1	10	1	—	3	—	4	16.0
1910	7	1	8	2	—	2	—	—	1	—	1	12.5
1911	8	1	9	6	—	6	—	—	—	—	—	0.0
1912	16	30	46	8	30	38	1	8	1	—	10	21.7
1913	46	74	120	34	67	101	2	1	—	3	6	5.0
1914	78	24	102	54	23	84	2	—	1	—	3	2.9

NOTE:—O—Over. W—Wharton. T—Total.

"Having spent a good deal of trouble in preparing these statistics, I confess I find myself at a loss to explain them.

DIPHTHERIA.

"Two hundred and sixty-eight cases in the last three years is 2.5 per cent. of the population. 223 were removed to hospital, being 83 per cent. of cases. 19 deaths are 7 per cent. of cases and a death-rate of 0.6 per 1,000 per annum. The year 1914 itself has had cases to the amount of 0.9 per cent. of the population, but the deaths are only 2.9 of the cases and the death-rate only 0.26. The heavy mortality in 1912 was due to the ignorance of the population as to the supreme importance of prompt action. Although the next two years have shown a great increase in cases, the case mortality and the death-rate have fallen even more markedly; and for this satisfactory feature we may perhaps claim some credit for our sanitary administration.

"Remembering that Over has twice the population of Wharton, the 72 cases in Over in five years 1907 to 1911 indicate twice the incidence of the disease there as the 19 cases in Wharton. But in the two years 1912 and 1913 the 104 cases in Wharton indicate very nearly four times the incidence of the disease there as the 62 cases in Over. In 1914 the ratio (always in proportion to population) was Over thirteen to Wharton eight. The Wharton cases however mainly occurred in the early part of the year and the Over cases in the later part. The change of incidence from Wharton to Over took place gradually throughout the year and it is a most extraordinary coincidence, if it be not the cause, that it exactly accompanied the completion of repairs to the houses in Station Road and the connection of the drains to the new main sewer.

"The details for 1914 are as follows:—

		Cases occurred		Total.	Re-moved to Hospital		Total.	Died.		Remarks.
		O.	W.		O.	W.		O.	W.	
1914										
January	...	8	4	12	7	4	11	—	—	Death in Hospital One death in Hos- pital; one at home
February	...	20	4	24	18	4	22	1	—	
March	...	9	6	15	7	5	12	2	—	
April	...	10	—	10	5	—	5	—	—	
May	...	2	1	3	2	1	3	—	—	
June	...	1	—	1	—	—	—	—	—	
July	...	3	2	5	—	2	2	—	—	
August	...	8	—	8	8	—	8	—	—	
September	...	2	1	3	2	1	3	—	—	
October	...	7	3	10	5	3	8	—	—	
November	...	5	3	8	4	3	7	—	—	
December	...	3	—	3	3	—	3	—	—	
		78	24	102	61	23	84	3	—	

"I should like to add here Mr. Hickson's report, which, though in general terms, is specially applicable to these cases:

"One hundred and thirty-eight houses where infectious disease has occurred, also twelve houses where dirty conditions obtained have been disinfected. Twelve lots of infected bedding, clothing, &c., have been disinfected at the steam disinfectory, Davenham Hospital. Three lots of bedding, &c., have been destroyed. Two privy-cesspools have been specially scavenged and the contents buried, after cases of enteric fever; and all privy-cesspools and pail-closets have been specially dealt with at houses where infectious disease occurred. Nine schools have been twice disinfected during the holidays and four schools have been specially disinfected following closure through infectious disease; also ten houses have been disinfected after deaths from phthisis."

"All cases of infectious disease have received personal attention immediately on being notified, the infected house has been visited, the case investigated and the particulars registered. Where possible the patient has been promptly removed to hospital, when this was undesirable measures of isolation have been adopted. On the recovery, or death, or removal of a patient to hospital, disinfection of the premises affected has been carried out forthwith."

"This is a brief and modest account of an enormous amount of investigation work most carefully carried out by Mr. Hickson. It enables me to make the following statement, strange as it sounds, that in nearly all cases there was no special information to be obtained. Only in one or two instances was personal contact the probable cause. Where two children have attended the same school, or two young women have worked in the same room at the salt-works, enquiries have failed to find other suspicious cases, nor have further cases followed from the suspected school or room. I cannot bring myself finally to accept the view I have previously expressed with a considerable amount of hesitation, that the district is pervaded by an intangible poison which at present is causing diphtheria in about one per cent. of the population each year and that this poison is probably the result of general insanitary conditions which have existed from time immemorial. To this I feel that it is a fair objection to ask why then are not other old towns similarly affected? and I have no reply, because I know that Winsford, at its worst, has never been half as bad as some other towns that could be mentioned, which

DIPHtheria.

do not suffer. The only alternative is to imagine that an enormous number of "carriers" exist. If we could "swab" the whole population, we might find them, but that of course is impracticable. And in that very unsatisfactory state I must leave the matter for the present."

The following is an extract from the Report of the Medical Officer to the Local Government Board dealing with a special inspection of the district made by Dr. S. M. Copeman:—

"Chief facts reported by the Inspector: The outbreak, for the most part a mild type, had continued over a period of many months with occasional intermissions, nine being the largest number of cases recorded in any one week. Winsford Urban District is made up of two districts, Wharton and Over, separated from one another by the River Weaver. In these districts incidence of the disease on population has been in the proportion of about four to one. Wharton comprises the more insanitary area of the Urban District. Until recently all house refuse was dumped into the roadways, there to await collection by the Council's scavenging staff. For this reason and because watering of roads in dry weather is not sufficiently attended to, dust, which on occasion must contain infective material, is blown about in large quantities. Inhalation of this dust is likely to account for prevalence of sore throats and probably of diphtheria. No evidence whatever as to milk or food of any kind having been implicated in spread of the disease. School attendance and presence of possible 'carriers' not specially concerned. Considerable portions of adults affected, but practically no secondary cases in households."

"The Urban District Council are taking energetic steps to improve sanitary conditions, especially as regards storage and collection of house refuse."

NANTWICH RURAL DISTRICT.—"Thirty-seven cases of diphtheria were reported, more than double the number reported during the year 1913. Thirty-one of the cases were removed to hospital and there were two deaths from the disease. This disease frequently occurs in a purely sporadic form, no clue to any source of infection being discoverable, but all cases, whatever their origin, are highly infectious. So-called insanitary conditions—although they may be incapable of directly causing the disease—may undoubtedly act strongly as predisposing causes. The main sources of spread

are probably unrecognised 'carrier cases.' A table is appended which shows the incidence of the disease upon the affected townships. It was most prevalent in the villages adjacent to the Borough of Crewe:—

"Thirty-one cases (or 83.7 per cent. of the cases) were treated in hospital."

NORTHWICH RURAL DISTRICT.—"Of the diphtheria 26 cases occurred during the last quarter, 14 occurred in the village of Moulton; as the water is 'town's water' of the constant service type and was found by bacteriological and chemical analysis to be quite good, this course was eliminated; the scavenging was particularly attended to and ashpits removed and replaced by 'bins' of galvanized iron; ventilating shafts are about to be placed at the head of the sewerage system. Not one of the cases notified was pathologically confirmed and as Moulton is a village about a mile from the Isolation Hospital the possibility of infection being conveyed was considered. Two of the cases notified occurred amongst the staff of the hospital, while the other 34 cases were removed there during the year; nine of them without the knowledge or consent of this Council's officials and previous to any notification being received by them. On submitting these facts to this Council and the practitioner being told that he was acting *ultra vires*, a most extraordinary claim was set forth by him, that as he was the Medical Officer to the Isolation Hospital he had the right of removing them and this demand was also claimed by the Clerk to the Isolation Hospital Authority. The claim is apparently based upon the 'order' appointing and defining the powers of the joint Hospital Committee and which says, 'Patients shall be admitted in one of the following ways—one of which ways is by the Medical Officer or any person authorized by the Committee to do so' and thus assuming that admission connotes power to 'remove' from, well, from an area which seems to be unlimited as it is undefined. The Rural District Council pointed out to the Hospital Committee that they would not pay for cases sent in without their own officials' authorization and the practice has ceased. At the present time the matter rests there."

RUNCORN RURAL DISTRICT.—"A serious outbreak of diphtheria occurred in Halton, commencing in August and continuing right on into 1915. I was absent with troops at the time, but, from all I can obtain, there is every reason to believe that the disease was imported from outside the district and was afterwards spread mainly, no doubt, by

DIPHTHERIA—ENTERIC (TYPHOID) FEVER

direct personal infection and contacts, through visiting and 'neighbouring,' as nearly all the patients affected were relations and friends of infected persons."

TINTWISTLE RURAL DISTRICT.—"Six cases were notified during the year—with one exception all in young children. When young children contract the disease very often, in spite of every attention, death supervenes within 36 hours. The first four cases were notified in January and February—two cases in one house. Another case was notified in June and the last in October. The cases were all in Tintwistle and in houses some distance apart. The premises were inspected by your Sanitary Inspector and myself and all enquiries made to get at the cause, but nothing definite was discovered."

Enteric (Typhoid) Fever.

There were only 89 cases of this disease notified in the County area during 1914. The highest attack rates were in the following districts:—

		Rate per 1,000 of population.
Compstall U.D.	...	1.09
Tintwistle R.D.	...	0.45
Wirral R.D.	...	0.44
Bredbury and Romiley U.D.	...	0.44
Hollingworth U.D.	...	0.38

There is no doubt but that the persistent sweeping away of such structures as privy middens and the closer attention which is being given to drainage, water supply and milk supply is responsible for the gradual extinction of this disease.

The following are the comments of the District Medical Officers of Health on this matter.

HYDE MUNICIPAL BOROUGH.—"There were two deaths from enteric fever during the year, giving a death-rate of .06 per 1,000, compared with .17 in 1913. Of the eight cases notified, six were isolated in hospital. No source of origin could be traced in any of the cases. Seven specimens of blood were sent to the Manchester University Public Health Laboratory for bacteriological examination, the result being positive in three cases. Pails with air tight covers, for the reception and removal of typhoid excreta, are supplied to houses which are not on the water carriage system."

STALYBRIDGE MUNICIPAL BOROUGH. — “Three cases were notified during the year and one death took place. The following are the numbers for recent years :—

	1904	1905	1906	1907	1908	1909	1910	1911	1912	1913	1914
No. of Cases ...	17	16	11	9	14	25	18	20	9	10	3
„ Deaths ...	6	4	1	3	5	2	3	7	2	4	1

“That only three cases of typhoid fever should occur is one of the most gratifying features of the year so far as the health of the borough is concerned. We have not a hospital for these cases, so that usually they have to be treated at home, often under the most disadvantageous conditions. When, however, the Borough Hospital, Ashton-under-Lyne, is available for the reception of these cases, our Sanitary Authority are kindly permitted to make use of the hospital for such cases from our borough as we may desire to send there. When cases of typhoid fever have to be treated at home, great precautions to prevent its spread are taken by our Sanitary Authority in providing special pails with disinfectants for the reception of all discharges from the sufferer, in instructing the inmates upon the necessity for strict personal cleanliness of the patient and themselves, as well as for cleanliness of the bed and body linen, in advising the destruction of all food left by the patient and in the destruction of beds and mattresses which have become much soiled with discharges. The sanitary conveniences of the premises also receive prompt and thorough attention.”

BREDBURY AND ROMILEY URBAN DISTRICT.—“Especial care has been taken in this disease. Immediately a case has been notified every effort has been made to discover its origin and to stop the disease spreading. These efforts have been successful, as no second case has arisen from any of them. As regards the possible causes,—one case was ascribed to eating unwashed oysters; another to ice-cream and a defective ashpit; but, on inquiry, no other cases had been noticed in connection with these ‘foods.’ In another case there was no discoverable cause and the fourth case was one of ‘continued fever’ of such a suspicious type that it was deemed wise to treat it as enteric, with good results. Abundant supplies of disinfectants are supplied by the Council for use in all notified cases and the house and its sanitary condition are thoroughly inspected, any collection of refuse being cleared away forthwith. In due course samples of blood are taken and submitted to Professor Delépine for bacteriological confirmation of the diagnosis. Three of the four cases notified gave an immediate reaction and the fourth was doubtful.

ENTERIC (TYPHOID) FEVER—ERYSIPELAS.

Arrangements have been made with Professor Delépine for a *telegram* to be sent to the attending practitioner when a positive reaction is found in enteric or diphtheria examinations. But in no case has isolation and treatment been delayed. I have not been called upon to inoculate for the prevention of enteric fever, but have urged the importance of it upon all with whom I have any influence, who have gone abroad, as I am satisfied from the expression of opinions by high authorities with the best opportunities of knowing, that it is a valuable preventive. I have made inquiries from those who have had it done and in no case was there any disagreeable effect from the little operation."

HAZEL GROVE AND BRAMHALL URBAN DISTRICT.—"During 1914 there has only been one case, which was clearly traceable to have been contracted outside the district. It was nursed at home, the premises thoroughly cleansed and disinfected and no further cases arose. I have not been called upon to inoculate against typhoid, but I would urge upon all people going abroad to submit themselves to this operation, as in my opinion inoculation has been the means of greatly reducing the number of cases. The inconvenience caused by the simple operation is but slight and the benefit great."

RUNCORN URBAN DISTRICT.—"Only five cases of this disease have been notified during the year; there have been three fatal cases. This is indeed gratifying, especially as the climatic conditions during the summer months rather favoured the development of the disease. This freedom can only be attributed to the extensive substitution of the water carriage system for the privy midden."

Erysipelas.

There were 381 cases of this condition notified in the County during 1914. The highest attack rates were in the following districts:—

				Rate per 1,000 of population.
Hyde M.B.	...	...	...	1.93
Sandbach U.D.	...	...	...	1.73
Ellesmere Port U.D.	...	...	...	1.68
Ashton-on-Mersey U.D.	...	...	...	1.44
Cheadle and Gatley U.D.	...	...	...	1.34
Runcorn U.D.	...	...	...	1.25

Dr. Garstang (Bucklow Rural District) remarks on this disease as follows :—

“Six cases of erysipelas only were notified. One proved fatal, a woman of 55 years, who had pulmonary congestion as well ; but, in spite of this ‘accident,’ I remain of the opinion that erysipelas is not worth notifying, or ‘worthy of comment.’ Statistics which show it to be dangerous are derived, I believe, from hospital records. As it occurs in private practice I can only say that it is most rare as an alleged cause of death and that in my own experience and in that of numerous friends from whom I have enquired no case has ever been known to cause a second case, or to affect unfavourably any co-existent case of any other ailment.”

Section V.—Tuberculosis.

Pulmonary Form.

The total number of cases of pulmonary tuberculosis notified to Sanitary Authorities in the Administrative County during 1914 (or from 4th January, 1914, to 2nd January, 1915) was 997, namely, 553 in males and 443 in females. The greatest number of these notifications, 222 cases related to persons between the ages of 25 and 35 years, the next age-period (35 to 45 years) providing 165 cases. Cases occurring at the various other age-periods are shown in the accompanying table.

COUNTY COUNCIL OF CHESHIRE.

PUBLIC HEALTH (TUBERCULOSIS) REGULATIONS, 1912.

Summary of Notifications during the period from 4th February, 1914, to the end of the week ending 2nd January, 1915.

Age Periods.	Number of notifications on Form A.												Number of notifications on Form B.			Number of notifications on Form C.	
	Primary notifications.												Total notifications (i.e., including cases previously notified by other Doctors).			Poor Law Institutions.	Sanatoria.
	0 to 1	1 to 5	5 to 10	10 to 15	15 to 20	20 to 25	25 to 35	35 to 45	45 to 55	55 to 65	65 and upwards	Total.					
Pulmonary—Males	8	24	45	38	37	51	112	97	66	30	5	513	515			10	93
Pulmonary—Females	3	19	23	40	49	55	110	68	41	9	6	423	423			7	39
Totals ..	11	43	68	78	86	106	222	165	107	39	11	936	938			17	132

The deaths from tuberculosis were 445 in number, viz.: 171 in the six Municipal Boroughs, 175 in the 35 other Urban Districts and 99 in the 12 Rural Districts. The death-rate from pulmonary tuberculosis in the Administrative County for the year 1914 was 0.73 per thousand of the estimated population, a figure slightly in excess of that for the previous year.

The districts which appeared to suffer most from this scourge were :—

	No. of Notifications received.
Crewe M.B. ...	64
Macclesfield M.B. ...	62
Dukinfield M.B. ..	60
Stalybridge M.B. ...	60
Hyde M.B.	56
Altrincham U.D. ...	45
Sale U.D.	34
Runcorn R.D.	31
Ellesmere Port U.D. ...	29
Hoylake and West Kirby U.D.	28
Northwich R.D. ...	28

I think a progressive improvement is taking place in most of the districts in the County in regard to the preventive measures against this disease—this both by the Councils concerned and the population individually. Public interest in it is being fostered by such measures as the National Health Insurance Act and by the various dispensary organisations.

Unfortunately for the scheme which your Committee had in progress, Dr. T. H. Peyton, the County Tuberculosis Officer, was called away for military duties early in August and since he left I have had to carry on his work as best I could. The scheme has made progress and at the time of writing this Report a site has, after very great searching, been found for the Joint Committee's Sanatorium and has been approved by the Local Government Board, subject to the water supply and means of sewage disposal being arranged to their satisfaction.

The following Dispensaries are in operation at this date :—

Chester Central Dispensary.
Crewe " "
Ellesmere Port Branch Dispensary.
Tarporley " "
Congleton " "

TUBERCULOSIS.

The Central Dispensaries at Northwich and Hyde will very shortly be ready and also the Branch Dispensaries at Winsford, Stockport, Runcorn and Altrincham. Great difficulty has been experienced in getting suitable premises at Hoylake and West Kirby and an unforeseen predicament (objection by a private school under the same roof) has arisen at Macclesfield, which will delay the coming into operation of the Dispensary here for a short time.

The Registrar-General has reached some important conclusions as to the incidence of tuberculosis on the two sexes under town and country conditions, which are of interest in a county such as this, where both crowded urban areas and sparsely inhabited rural areas are so intermingled. (Seventy-sixth Annual Report).

“The fall in the standardized rates has been shared in almost equal proportions by both sexes, but the mortality of males, as in other recent years, exceeded that of females by about one-third. The excess, as in former years, was far greater in town than country, being 68 per cent. in London, 41 per cent. in the county boroughs, 26 per cent. in the smaller towns and only eight per cent. in the Rural Districts. For the population at large and for the male sex mortality from tubercle varied in the same way with urbanization, from a maximum in London to a minimum in the Rural Districts; but, as in 1912, a higher mortality was recorded for women in the County Boroughs than in London. The excess of female mortality in the County Boroughs over that in the Rural Districts was 33 per cent., but for males the excess of the London rate over that of the Rural Districts was 91 per cent., so it is evident that urban conditions of life increase the risk of tubercle much more for males than for females. It is of interest to inquire whether this is due to some inherent difference between the sexes or to the conditions of their life in town and country respectively. The woman's sphere of activity being so largely her own household whether in town or country, it seems natural that she should be less affected by the difference between the two environments than the man, who probably exchanges an outdoor life in the country for an indoor occupation in town. While at every age above 15 male rural mortality is smaller and male urban mortality greater in proportion to total male mortality than are the corresponding female rates in proportion to total female mortality, no such rule applies to ages 0-15. In other words, the adverse effect of town conditions upon mortality from phthisis is greater for males than for females at ages above 15, about which work may be taken to begin, but not in childhood. The same statements

are applicable to tuberculosis generally and if we examine the chief forms of tubercle characteristic of childhood we find that although there is greater increase of mortality from tuberculous meningitis with increasing aggregation of population for male children than for female, no such difference is shown in the case of abdominal tuberculosis. On the whole, therefore, the evidence here considered seems to show that the differentially adverse effect of town life upon the male sex is but little manifest prior to the age at which occupation commences and hence that if the conditions of their lives were similar the two sexes would probably be about equally affected by the change from rural to urban surroundings. In this connection it may be permissible to recall the fact, mentioned in last year's report, that in the asylum population, where their conditions of life are similar, phthisis mortality is about equal for the two sexes, just as it is approximately equal for the two in the Rural Districts."

Non-Pulmonary Forms of Tuberculosis.

This group of tubercular diseases includes tuberculosis of the meninges (covering membrane of brain and spinal cord) of the bones, joints, glands, abdominal organs, &c. The number of such cases notified during 1914 was 355.

The districts in which relatively high numbers of notifications were received were as under:—

			cases.
Crewe M.B.	...	...	36
Macclesfield M.B.	...	...	29
Runcorn R.D.	...	...	25
Lower Bebington U.D.		,	26

The remarks of the District Medical Officers of Health on tuberculosis are appended and form, in many instances, exceedingly interesting reading.

CONGLETON MUNICIPAL BOROUGH.—“Of the 10 cases of pulmonary tuberculosis notified during the year, three died and the other three deaths, shown in Table III., were of persons who had been notified in previous years. Of the cases of other forms of tuberculous disease, two died from peritonitis and one from otitis. The Medical Officer visited all the cases—and most of them several times—except two of phthisis which were not notified till after death, although they had apparently

TUBERCULOSIS.

been going on for some considerable length of time and in most instances found the houses in a fairly good state from a sanitary point of view, although it appeared to him that treatment in a sanatorium would have given them a better chance of recovery and removed the risk of infection of others, but it was only rarely removal could be effected. It also occurred to him that more cases would be sent to sanatoria were the forms to be gone through, in order to gain admission, simplified and the reports required from the Medical Attendant much abbreviated; for the busy practitioner finds clerical work irksome and to avoid it might prefer to keep his patients at home. Two of the cases of phthisis recovered so rapidly as to suggest error in diagnosis and two improved considerably, but the majority were either chronic or pursuing a downward course and not likely to be much benefited by any kind of treatment."

CREWE MUNICIPAL BOROUGH.—"The cases notified of pulmonary tuberculosis numbered 64 and the number of deaths was 34.

"The cases notified during the year were as under:—

			Died in 1914.	Living at end of year.
Males	...	41	9	32
Females	...	23	7	16
		—	—	—
		64	16	48

"The number of people known to be suffering from the disease at the end of 1914 was 94, almost three times the number of deaths from this cause. The Lady Health Visitor visited each case upon receipt of the notification and, after making the necessary enquiries, gave advice as to the preventive measures necessary to protect other members of the family from infection.

"Thirty-one per cent. of the new cases had been suffering from the disease for more than one year. In 1912 the percentage was 64 and in 1913, 27. As was expected, the number of old standing cases notified for the first time has diminished since compulsion came into force. Nurse Race reputes that she found it difficult to impress upon the people she saw that the disease was infectious and that the public have much to learn as to its spread and prevention of same. Among 34 per cent of the new cases it was found that another member of the family occupied the same bed as the patient and difficulty was experienced in convincing those concerned of the

great importance of separate sleeping accommodation and at least a separate bed for the patient. These observations made in the homes of the people illustrate how important the educational side of the health visiting is and how necessary for the greater prevention of the disease is greater knowledge on the part of the public.

“As an aid to the early detection of pulmonary tuberculosis, the Health Committee have for some years provided for the bacteriological examination of sputa. In 1914 the specimens examined and the results were:—

	No. Specimens.	Results.	
		Positive.	Negative.
Municipal Laboratory	177	33	144
Manchester „	21	4	17
	—	—	—
	198	37	161

“The open-air shelter at the Isolation Hospital was in continuous use throughout the year—nine patients were admitted, two females and seven males. Five of the men and two women were persons in receipt of sanatorium benefit under the National Insurance Act and were admitted on the recommendation of the County Tuberculosis Officer and the County Insurance Committee (two from the County area) the other two men were entitled to similar benefits but were not sent in by the Insurance Committee.

“The length of stay and progress of each case was as follows:—

1. M. Age 21, fitter. Admitted left 3 days. This man left without permission after three days under treatment. Condition—advanced disease in lungs and renal complications. Sent in by his own doctor while waiting for sanatorium benefits. Died since.

2. F. Age 19, dressmaker. Admitted February 26th, died April 9th. Forty-three days in shelter. Weight on admission 78lbs., advanced disease, rapid spread. In receipt of sanatorium benefit.

3. F. Age 18, laundress. Admitted April 1st, discharged April 29th. Twenty-nine days in shelter. Weight on admission 94lbs., on discharge 97lbs. In first stage of disease, made good progress towards recovery and left to go for prolonged treatment in a sanatorium for early cases. In good health when seen last.

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5. M. Age 44, engineer. Admitted May 11th, discharged July 24th. Eighty-one days in shelter. Weight on admission 115lbs., on discharge 132lbs. Advanced stage of disease which improved under treatment and lesion became quiescent. In receipt of sanatorium benefit. Provided with movable shelter in yard on his return home. Lived 10 months after discharge.

5. M. Age 44, engineer. Admitted May 11th, discharged October 22nd. One hundred and forty days in shelter. Weight on admission 103lbs., on discharge 109lbs. Advanced stage of disease. In receipt of sanatorium benefit—sent to a sanatorium on leaving shelter.

6. M. Age 21, iron foundry worker. Admitted August 4th, discharged October 12th. Sixty-nine days in shelter. Weight on admission 109lbs., on discharge 123lbs. Old healed lesion in one lung, second stage of infection in other which became quiescent. From the County area in receipt of sanatorium benefit.

7. M. Age 27, painter. Admitted October 13th, died October 25th. Twelve days in shelter. Weight on admission 90lbs., on October 19th 89½lbs. This patient was in the last stage of the disease with abdominal infection as well and was quite unfit to be asked to travel. He was sent from the north-east corner of the County area. A long time had evidently elapsed between the date of examination for sanatorium and the receipt of same.

8. M. Age 29, farm labourer. Admitted October 31st, still in shelter at end of the year. Weight on admission 144lbs., second stage of the disease. Improved. From the County area in receipt of sanatorium benefit.

9. M. Age 42, engine fitter. Admitted November 2nd, still in shelter at end of the year. Weight on admission 142lbs., second stage of the disease, made excellent progress. This was an insured person waiting for sanatorium benefit from the County Insurance Committee and valuable time was saved in the treatment of his disease by his admission to the shelter.

“The Local Government Board continue to recognise the open-air shelter as suitable for the reception of insured persons in receipt of sanatorium benefit. A Medical Inspector visited the hospital during the year and he agreed with your Medical Officer in the opinion that such advanced cases of tuberculosis as number 7 proved to be should not be asked to travel a long distance.

"Since the shelter was opened in 1909 the patients treated each year were:—seven in 1909, six in 1910, eight in 1911, seven in 1912, four in 1913, nine in 1914.

"The small movable shelters provided by this Authority for domiciliary treatment were largely used during the year both in the borough and, at the request of the County Insurance Committee, in the adjacent County area as well. The following details will be of interest to the Health Committee:

- | | |
|------------------------------|--|
| 1. Shelter, bed and bedding. | 48 $\frac{3}{7}$ weeks in County area. |
| 2. Shelter, bed and bedding. | 37 $\frac{5}{7}$ weeks in garden in borough. |
| 3. Shelter only. | 35 weeks in County area. |
| 4. Shelter only. | 5 $\frac{5}{7}$ weeks in garden in borough. |
| 5. Shelter only. | 13 $\frac{6}{7}$ weeks in County area. |
| 6. Shelter, bed and bedding. | 18 $\frac{3}{7}$ weeks in yard in borough. |
| 7. Shelter only. | 29 $\frac{3}{7}$ weeks in County area. |
| 8. Shelter, bed and bedding. | 4 $\frac{3}{7}$ weeks in yard in borough. |

"Collection and adequate disposal of the sputum expectorated by infected persons is one of the most important preventive measures which can be adopted. For some years now this Committee has provided cardboard boxes for use indoors with instructions that the box and contents mixed with a little saw dust be burned in a hot fire. Pocket flasks are also given in suitable cases and each patient who has been in the open-air shelter for treatment brings home a flask. With systematic health visiting much more use is now made of these boxes, 3,231 were distributed in 1914 as compared with 2,661 in 1913 and 964 in 1912.

"Disinfection of the bedroom occupied by a patient is always carried out when that patient ceases to use the room. The notifications received from sanatoria regarding the admission of patients facilitates this being done, as otherwise it might be some time before information reached the Health Department that the patient had left home.

"The following Bye-law is in force in the borough:—

- 'No person shall spit on the floor, side, or wall of any public carriage, or of any public hall, public waiting room, or place of public entertainment, whether admission thereto be obtained upon payment or not, within the borough.'

"The arrangements described last year between this Authority and the County Insurance Committee with regard to

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sanatorium benefits are working smoothly and with satisfactory results. To ascertain how many of the persons notified are entitled to sanatorium benefits, enquiry was made by the Health Visitor with this result:—

	Number Notified.	Number Insured.	Number of those who received institutional treatment.
Males	41	29	11
Females	23	11	3

“In other words 71 per cent. of the males and 48 per cent. of the females came under this category, while only 35 per cent. of these actually received institutional treatment. The great delay which persons still experience before they are actually sent to a sanatorium has a prejudicial effect in two directions especially; it discourages possible applicants and results in greater inroads by the disease in the interval.”

DUKINFIELD MUNICIPAL BOROUGH.—“Pulmonary phthisis was responsible for 23 deaths and six more were due to other forms of tuberculosis, compared with 27 in 1913, 25 in 1912, 31 in 1911, 20 in 1910, 28 in 1909, 25 in 1908, 33 in 1907, 25 in 1906, 11 in 1905, 18 in 1904, 25 in 1903, 19 in 1902, 24 in 1901 and 23 in 1899. This is an undoubted infectious disease and, owing to improved hygienic condition, the death-rate has considerably decreased in recent years:—

DEATH-RATE.

1851–1860	...	...	2.7
1861–1870	...	...	2.5
1871–1880	...	...	2.1
1881–1885	...	...	1.8
1885–1890	...	...	1.6

“The death-rate for all forms of tuberculosis in 1914 in Dukinfield is 1.45. The tendency to phthisis may be inherited, but whether heredity can do more than strongly predispose to the disease is less certain. It is remarkable how consumption clings, not only to certain localities, but also to certain houses without any relation as to who the tenants may be. On receipt of primary notification the house is immediately visited and instructions left for the guidance of patient and household. Subsequent visits are paid, if necessary, and sputum is pathologically examined free of charge at the request of the medical attendant. Tuberculin is also supplied by the Local Authority. Patients are sent to sanatoria by the Insurance Authority at Chester and home treatment is carried

on by medical attendant and patients visited by County Tuberculosis Officer. The premises are disinfected by the Sanitary Authority and disinfectants are regularly supplied."

HYDE MUNICIPAL BOROUGH.—"There were 42 deaths from pulmonary tuberculosis and 15 from other forms of tuberculous diseases during the year. The phthisis death-rate is equal to 1.2 per 1,000 and that from other forms of tuberculous disease to .44. Fifty-six cases of pulmonary tuberculosis and thirteen of other forms of tuberculosis were notified. All cases notified have been visited and instructions given for the prevention of the spread of infection. A copy of the leaflet printed below has been given to each occupier:—

INSTRUCTIONS TO PERSONS SUFFERING FROM CONSUMPTION.

Consumption is an infectious disease which is communicated in the following way:—

The infection is contained in the spit, or expectoration, of a patient suffering from the disease. The expectoration is deposited on floors, walls, clothes, handkerchiefs, etc., where it dries and gets mixed with dust and is blown about in the air. This infected dust is inhaled by healthy persons and produces consumption in their lungs.

The following precautions should therefore be taken by persons suffering from consumption, to prevent the infection of others.

They should not spit on the floor or walls of any living-room, workshop, railway carriage, or in any place where people assemble. At home they should spit in a piece of paper or rag and immediately throw this into the fire. A cup containing water may be used, which should be frequently emptied into the drains outside the house and before being used again the cup should be thoroughly cleansed with boiling water.

When away from home a pocket spittoon, with a tight-fitting cover, should be used, or the expectoration deposited in pieces of tissue paper, rolled up and burned before the spit becomes dry.

All eating utensils should be thoroughly washed in boiling water before being used by another person.

Persons suffering from consumption should not kiss on the lips.

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Rooms occupied by consumptive persons should be kept thoroughly clean and as much fresh air and light admitted to them as possible.

Clothes soiled with expectoration should be washed and boiled.

As soon as it becomes known that a person is suffering from consumption the rooms occupied by the patient should be thoroughly disinfected. This will be done free of cost, or, if the householder desires to do the work himself, directions will be given. When once the rooms have been thoroughly disinfected and cleaned, it is easy to keep them so by washing the floors frequently with soap and water and dusting them every day with a wet duster, so as to prevent infectious dust being scattered about the room.

The walls of a room occupied by a consumptive patient should be rubbed down with dough every three months.

A consumptive patient and his clothes should be kept scrupulously clean.

The commonest conditions which render persons liable to contract consumption are overcrowding, damp rooms, want of fresh air and ventilation and want of light, therefore all these conditions should be avoided as far as possible.

A consumptive person leaving a house should notify the fact to the Medical Officer of Health, so that it may be disinfected before being occupied by another tenant.

J. BENNETT,

Medical Officer of Health.

STALYBRIDGE MUNICIPAL BOROUGH.—“On and from January 1st, 1912, all cases of pulmonary tuberculosis became compulsorily notifiable and on February 1st, 1913, all cases of tuberculosis, whether affecting the lungs or affecting any other organ of the body, became compulsorily notifiable. During the year 60 persons have been notified as suffering from pulmonary tuberculosis, of whom 35 were males and 25 females; while five males and eight females have been notified as suffering from other forms of tuberculosis.

“Undoubtedly notification enables the Sanitary Authority to investigate, to advise and to take such precautions as are at

present suitable and available, but how incomplete and how frequently futile are those available precautions. Upon receipt of the notification of a patient resident at the time in the borough, the patient is visited and enquiries are made as to the patient's habits and occupation, the sanitary condition of the premises, the number of inmates and the possibility or impossibility of the patient's isolation in separate bed and bedroom. A leaflet of instructions is left for the observance of the patient and the others in the home and periodical disinfection of the premises by the Sanitary Authority is also advised.

"The deaths from pulmonary tuberculosis during the year numbered 36; I quote those of recent years, for comparison:—

Year:—	1914	1913	1912	1911	1910	1909	1908	1907
Number of Deaths ...	36	32	24	37	30	35	38	39
Death-rate ...	1.3	1.2	0.9	1.39	1.02	1.2	1.31	1.35

"From other forms of tuberculosis there were 14 deaths.

"Each week the Sanitary Inspector is furnished by me with a return of any deaths registered as due to pulmonary tuberculosis, so that he may visit and ask permission to disinfect the bedding and premises used by the sufferer and as a rule the friends are most willing to allow these precautions to be taken. Of the 60 persons notified as suffering from pulmonary tuberculosis 19 have been at some period or other in hospital or sanatorium. Only very early cases—those in the first stage of the disease—are eligible for admission to the sanatorium and for the present at any rate the advanced cases, with which all general practitioners are only too well acquainted, are obliged to remain under their present unsatisfactory surroundings—nursed in the living place of an already overcrowded tenement and spreading the disease broadcast around them.

"The duration of stay in a sanatorium averages about six or eight weeks—a period altogether inadequate to effect any abiding good and the patients too often of necessity return to their former unhealthy surroundings and are then apt to grow careless as to the observance of the good habits into which they had been initiated. What progress has been made during recent years in diminishing both the incidence and the mortality from pulmonary tuberculosis has been the result of improved sanitary conditions of the homes, the workshops

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and the factories and instruction of the public in habits of personal hygiene, in the advantage of the open window and in the importance of plain, wholesome food. It is to these matters a Sanitary Authority must direct its attention—the purity of our food supply and especially our milk supply; the abolition of slum and overcrowded dwellings, with their replacement by modern dwellings in open situation; and the education of the public in the observance of strict personal and domestic cleanliness and of thorough ventilation of their dwellings and in the avoidance of over-indulgence, whether in food, drink, or pleasure.”

ALSAGER URBAN DISTRICT.—“The notifications comprised: two at 26 years, one at 30 years, one at 37 years, one at 49 years. Four cases were treated at home. Results—three deaths and one recovery.

“The remaining case was sent by the National Insurance Committee to Wensleydale Sanatorium, Aysgarth, Yorkshire, where she is at present and reported to be doing well.”

ALTRINCHAM URBAN DISTRICT.—“The notifications of cases of tuberculosis were:—

Form A. 53 (pulmonary 45, other forms 8).

Form B. 1, Form C. 9, Form D. 12.

“The action taken in the cases of tuberculosis includes the disinfection of houses and effects by the Council, cards of advice provided for households invaded by the disease and attention is directed to the surrounding influences. Pending a definite scheme being furnished by the County Council as to institutional treatment, cases have been dealt with, as far as possible, through the agency of the Manchester Consumption Hospital and the Crossley Sanatorium at Delamere.”

HIGHER BEBINGTON URBAN DISTRICT.—“Notifications were received of two pulmonary and two glandular cases of tuberculosis, of which two were notified by the School Medical Inspector in his routine of the examination of the children; such cases are excluded from school in the hope that parents will place them under medical treatment. Two deaths occurred from tuberculosis of the lungs and one from tuberculosis of the coverings of the brain. The County Council, as part of their scheme for dealing with tuberculosis patients, have opened a Dispensary at 15, St. John Street, Chester, the work

of which will be carried out by the District Tuberculosis Officer, who will attend there for the present at the following times:—

Tuesday	...	...	10-0 a.m. to 1-0 p.m.
Friday	...	...	10-0 a.m. to 1-0 p.m.

“Sub-dispensaries will also shortly be opened at Ellesmere Port, Hoylake and Birkenhead. The facilities of these arrangements will be available for all persons requiring treatment for tuberculosis, whether insured or non-insured and for the examination of doubtful cases and contacts.”

LOWER BEBINGTON URBAN DISTRICT.—“Forty-five cases of tuberculosis were notified, of which 19 were pulmonary and 26 ‘others.’ These cases have been visited from time to time and their sanitary surroundings noted. Disinfection is rigidly carried out by the Council on removal of the patient or in case of death.”

BOLLINGTON URBAN DISTRICT.—“Three cases of tuberculosis were notified during the year, two of whom were sent to sanatoria by the Insurance Committee. There were five deaths from tuberculous diseases notified during the year. One of those, however, was that of the visitor who died at the station on his arrival, so that the nett number of deaths of residents from tuberculous diseases was four. Of these two had had sanatoria treatment. On receipt of the notification of a case of tuberculous disease the house is visited by your Medical Officer, full enquiry is made into the family history and into the circumstances of the house. This is particularly directed to sleeping accommodation, supply of fresh air, methods of dealing with sputum, &c. Leaflets dealing with the treatment and the necessity of taking all possible precaution as to infection of the inmates, drafted by Dr. Meredith Young, County Medical Officer of Health, are provided by the Council. Sputum cups too are provided for cases requiring them. Subsequent visits are paid from time to time with a view to seeing that the necessary precautions are being continued with. Spraying of the rooms with the ‘formalide’ spray is done by the Nuisance Inspector. It has not been found possible, owing to want of accommodation, to erect shelters. In the last two years two patients have supplied their own, these being practically the only two cases where there was sufficient yard space for their erection.”

BOWDON URBAN DISTRICT.—“Of the four cases of tuberculosis, one died and one was removed to a Stroud Sanatorium.

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but returned home uncured. In all cases of infection reported to me a strict inspection is made and precautions taken to prevent the further spreading of infection."

BREDBURY AND ROMILEY URBAN DISTRICT.—"During the year 1914 nine cases of phthisis and thirteen other tuberculous diseases have been notified to me. There were eight deaths certified as due to phthisis (some of these were notified in previous years) and seven deaths certified to other forms of tubercular disease. The death-rate from phthisis for the year equals .86 per 1,000, the death-rate for all other tuberculosis equals .75. The notified cases of phthisis and other tubercular disease are privately investigated by me and the details entered in the proper register, as ordered by Art. xi. Some of these cases are notified by the medical officers of the hospitals, of which the patients are inmates. All the cases notified in 1914 are being well attended, either as hospital inmates, private cases, or National Insurance patients receiving home treatment. As a result of the notification, etc., of phthisis, the general public are rapidly learning that it is an infectious disease and are willing to adopt suggestions made with a view to prevent the disease from spreading. Many of the cases notified here have not originated in this district, but have come out into the country from the neighbouring towns for fresh air treatment instead of going into a sanatorium. Cards containing summaries of information and instructions respecting tuberculosis and the precautions to be taken against the spread of infection have been distributed by me. Disinfection of the rooms used by patients is carried out by the Council's men, as and when required. Weekly statements are sent to the County Medical Officer of Health and returns of all cases of infectious disease, including tuberculosis, are sent to the Local Government Board and also to the County Medical Officer of Health."

BROMBOROUGH URBAN DISTRICT.—"Six tuberculosis cases were notified, two pulmonary and four glandular tuberculosis, five of which were sent in by the School Medical Inspector. One death from pulmonary tuberculosis took place."

CHEADLE AND GATLEY URBAN DISTRICT.—"Eleven deaths were registered as due to phthisis and other tuberculous diseases which included six deaths at the Barnes Convalescent Hospital, as compared with ten deaths in 1913, of which one occurred at the Royal Lunatic Hospital and one at the Barnes Convalescent Hospital. Two transferable deaths belonging to the district proper were registered as due to tuberculosis."

Six of the deaths belonging to the district proper were registered as due to pulmonary tuberculosis and one as tubercular laryngitis. Deaths at the Barnes Convalescent Hospital were in two cases due to tubercular spinal caries, one to tubercular meningitis, one to tubercular adenitis, one to tubercular disease of the hip and one to tubercular disease of the elbow.

“As I have remarked in several of my previous annual reports the death-rate from tuberculosis would be much lower if persons did not come into the district from the neighbouring towns in the latest stages of the disease with the hope of receiving benefit from the purer air.

“Eight cases of pulmonary tuberculosis were notified during the year as compared with eleven in 1913 and twenty-two in 1912. One case notified twice. No cases were notified from any of the Public Institutions. Three cases of other tuberculous diseases were notified as compared with thirteen in 1913 and one of these was notified twice. In each case of pulmonary tuberculosis that was notified I visited the house and full enquiries were made and when necessary advice was given. One case was sent to a sanatorium and another was to have gone but was too ill to go when the necessary arrangements had been made. One case which was notified had come on a visit to some friends in the district. Your Council as yet has done nothing in the matter of providing shelters or sputum pots, but do provide disinfectants which are very freely used. Houses where cases have occurred or where patients have died have been thoroughly disinfected and also the bedding and articles of clothing which may have become contaminated. The three cases of other tubercular diseases that were notified all belong to the district proper. One case was notified twice. In one case the larynx was affected, in another glands in the abdomen.

“In December, 1911, I was directed to report on the sanatorium and hospital accommodation provided by the Sanitary Authority for early, intermediate and advanced cases of phthisis. None has been provided, nor has your Council reserved any beds in a sanatorium for cases of phthisis. As far as I know there is no suitable building in the district for the treatment of phthisis. Several patients from this district attended the Manchester Consumptive Hospital and are from there sent to sanatoria. The Stockport Board of Guardians have erected at their Stepping Hill Hospital a pavilion in which patients under the Poor Law from the district can be

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treated. As yet nothing definite has been done in the providing of dispensaries for the treatment of cases of tuberculosis. This is still I think under consideration of the County Council."

ELLESMERE PORT URBAN DISTRICT.—"Seventy-nine cases of pulmonary and twelve of other forms of tuberculosis were notified. Several patients received sanatorium treatment. Twelve persons died from tuberculosis; five from tubercle of the lungs, five from tubercle of the coverings of the brain and two from tubercle of other organs. Rooms occupied under these conditions are disinfected upon removal of the patient to sanatorium, also in every case where death occurs."

HALE URBAN DISTRICT.—"Eight deaths from tuberculous diseases were registered during the year. Of these six were from phthisis and two from tuberculous meningitis. During 1913 four deaths occurred from tuberculous diseases. As heretofore, provision is made by the Council for the examination, free of charge, of sputa and discharges suspected of tubercle bacilli. Under this provision, ten specimens were submitted for examination, two were positive and eight negative.

"The number of cases of phthisis notified (12) is the same as last year and the number of other forms of tuberculosis (6) is an increase of two on last year. All these cases were visited on notification and 21 subsequent visits have been made. At such visits advice is given with a view to preventing further infection and enquiries are also made to ascertain whether this may have taken place. Wherever a case ends fatally, or where a case 'removes,' the premises are disinfected as in other infectious diseases."

HANDFORTH URBAN DISTRICT.—"No cases of tuberculosis were notified. Any cases notified are visited, warned about the sputum and supplied with disinfectants."

HAZEL GROVE AND BRAMHALL URBAN DISTRICT.—"During the year I have been notified of eleven cases, all of which have been of the lungs. All cases notified are visited, either by myself or the Inspector and instructions given to prevent the spreading of the disease."

HOLLINGWORTH URBAN DISTRICT.—"No deaths from tubercular diseases were registered last year. Six cases were reported to me.

Pulmonary Tuberculosis	...	3
Tubercular Glands of Neck	...	3

“On receipt of a notification I immediately visit the house and leave instructions for the guidance of patient and household. Enquiries are made as to the patient's habits and occupation, also the sanitary condition of the premises, the number of inmates and the possibility of the patient's isolation in a separate bedroom. Arrangements have been made for the bacteriological examination for the detection of tubercle and suitable cases are now able to obtain the ‘tuberculin’ treatment at the Glossop Dispensary. Two of the three pulmonary cases have now been admitted to a sanatorium and the third case is undergoing domiciliary treatment.”

HOOLE URBAN DISTRICT.—“There were four cases of pulmonary tuberculosis notified during the year, against 13 in 1913. Three cases of other forms of tuberculosis were notified, one being tuberculosis of the larynx and the two other tuberculosis of the spine. In every case the patient's house was visited and revisited, full particulars were obtained and recorded, verbal advice as to general management was given and a card of printed instructions left. Sputum flasks, paper handkerchiefs and disinfectants were also supplied. Altogether there were five deaths from pulmonary tuberculosis recorded during the year. The rooms being fumigated with Formalin vapour and the bedding and all contaminated articles of clothing destroyed. Notices also were served upon the owners to strip, limewash and repaper the walls of infected rooms and to clean down the rest of the house, all of which notices were complied with. Four cases received institutional treatment, two through the instrumentality of the Cheshire Insurance Committee. No special sanatorium accommodation has been provided as yet by the Council, inasmuch as this matter is in the hands of the County Council. The only accommodation within the district for the hospital treatment of cases is in the Chester Union Hospital, where there are two wards set aside for that purpose, one for males and the other for females and two day rooms. One of our cases, a woman, aged 30 years, was an inmate from March 28th to May 23rd and received beneficial treatment there.”

HOYLAKES AND WEST KIRBY URBAN DISTRICT.—“Twenty-eight cases of pulmonary and nine of other forms of tuberculosis were notified, most of whom were visited, but in a number of instances the notifying practitioner requested that no visit should be paid. The sanitary circumstances of every case were known. Several patients have been treated in sanatoria and others have come into the district to avail themselves of the beneficial climatic conditions for respiratory diseases. Thirteen persons died from tubercle of

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the lungs and five from tubercle of other organs. This includes nine pulmonary and one 'other' forms of cases notified this year."

KNUTSFORD URBAN DISTRICT.—"Article XII. of the General Order of 19th December, 1912, requires the investigation of cases of tuberculosis to be made by the Medical Officer of Health, 'or an officer of the Local Authority acting under the instructions of the Medical Officer of Health.' As no such officer exists in small districts outside the Inspector of Nuisances (who is often already overburdened), this has led in most districts to this important and confidential work being added to his duties. I myself consider that this procedure constitutes an injustice to the patient and violates the confidential nature of the enquiry which is indicated as the intention of the Order in Article XI. (2). Through quixotic conscientiousness I have personally retained this work in my own hands. The time and trouble it has cost me cannot be adequately described and I may now frankly state that this difficulty (*i.e.*, the physical limitations of space and time) is the main factor in stiffening my determination to retire altogether at the end of 1915. I am not making any complaint. I am simply stating facts. I would respectfully ask the Local Government Board to recognise that conditions of life are so different in large cities and in rural areas, that it is impossible to draft a General Order which shall in one set of words deal adequately and yet fairly and reasonably with both.

"Each case is visited by the Medical Officer of Health as soon as convenient; subsequent visits are made by him at his discretion; there are no arrangements (*i.e.*, there is no staff) for the detection of unrecognised cases; there are no tuberculosis officers or nurses available, so far as I know; disinfectants are supplied on request; disinfection of premises and bedding is carried out after a death and at any time on request."

LYMM URBAN DISTRICT.—"A strong and determined effort is being made to stamp out tuberculosis throughout the kingdom and it behoves us in Lymm to see where we stand and how we are tending with regard to this disease. During the years 1912-1914 thirty-three cases of tuberculosis (pulmonary) have been notified. The deaths during these years have been eight of pulmonary tuberculosis, two from other tubercular diseases, excluding meningitis and two from tubercular meningitis. So far as prevention and treatment are concerned we in Lymm are falling in with the best practice by regarding ourselves wherever possible as a portion of the County unit. I should like to say

something, however, about what is, in my opinion, one of the most potent factors in preventing tuberculosis, namely, the raising and maintaining of the immunity of the individual. The tubercle bacillus is notably powerless against the healthy and normal organism. A well fed, well housed, healthily occupied, temperate nation, acting in intelligent co-operation and that is the point, with well considered sanitary legislation, will offer a high resistance to disease in general and one almost impregnable to tuberculosis in particular. As we lessen overcrowding, bad ventilation, bad feeding, measles, whooping-cough, alcoholism and syphilis, the tubercle bacillus will be hard put to it to find a host to prey upon. A platitude, if you will. But a truth that is not yet sufficiently known and appreciated and which should prevent some of us from trembling with foolish dread when we pass a phthisical patient in the street, whilst we continually outrage every elementary law of hygiene in our homes and lives. So long as tuberculosis is amongst us we cannot dodge the bacillus, but we can do far better, for by living reasonably healthy lives we can strengthen our defences and defy it. The predisposition due to heredity and to other diseases can thus be minimized and that due to bad hygienic conditions and intemperance can be avoided. Corn does not grow on a barren rock ; the tubercle bacillus will not thrive on a healthy organism."

MARPLE URBAN DISTRICT.—"There were five cases of pulmonary tuberculosis and six cases of other tubercular diseases notified in 1914. Under the Tuberculosis Act all reported cases were isolated as far as possible and instructions given as to disinfection, sputum, &c. One case was having domiciliary treatment, one case was in hospital and one sent to a private sanatorium. Of the other cases of tubercular disease, four were notified from hospitals and two were tubercular meningitis."

MIDDLEWICH URBAN DISTRICT.—"Sanitary inspection of patients' houses is undertaken in these cases. Disinfection of houses and distribution of circulars containing advice is carried out. Paper handkerchiefs are supplied and burned. A supply of sputum flasks, disinfectants, paper handkerchiefs, &c., is carried out by the Council and visitation by Nurses or Health Visitors is arranged."

MOTTRAM URBAN DISTRICT.—"Only one case of pulmonary tuberculosis was notified during the year and that was from the Glossop Union Infirmary. The patient was a man who gave his address as the Lodging House, Mottram. Insured patients suffering from tuberculosis and receiving domiciliary

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treatment are granted (should their circumstances require) a supply of milk, eggs and meat every week. This is a great help, as in many cases the patients were unable to obtain all the nourishment required. The insured patient or his doctor can always get the opinion of one of the Tuberculosis Medical Officers in doubtful cases and where the treatment is somewhat uncertain. These are all improvements, the significance of which only time will show. There is no Tuberculous Dispensary in our district, but an arrangement has been made by the Insurance Committee for our patients to go to Glossop."

NANTWICH URBAN DISTRICT.—"During the year under review all cases of consumption reported have been frequently visited, sputum cups have been provided gratis and leaflets of information for persons suffering from consumption have been distributed. A Tuberculosis Dispensary has now been opened at Crewe for cases from Crewe and surrounding district, where the District Tuberculosis Officer will attend twice a week. Both insured and non-insured cases will be treated there."

NORTHWICH URBAN DISTRICT.—"Of tubercular diseases 16 notifications have been received, 11 of these being phthisis; of the other forms two were of the knee, two of the peritoneum and one of the meninges. Four were notified from sanatoria. During the year two patients suffering from phthisis—a man and his little daughter—have been treated by the Sanitary Authority in the old Isolation Hospital at Wade Brook for many months. This to relieve the overcrowding which exists in his house, to isolate these two from the other members and to give the girl a chance of recovering, also for some months an allowance of milk has been made to three other cases.

"One cannot but regret that the money about to be expended upon Tuberculosis Officers, Nurses, Dispensers and Dispensaries is not available by the existing machinery for the treatment and benefit of cases, by which means real and definite relief and even cure might be effected at less cost. The inspection of all houses where cases are notified is carried out unless otherwise requested by the notifying practitioner. Disinfectants are supplied and advice as to separate room or bed, spitting, &c., is given. These matters are supervised by the Health Visitor. Flasks and paper handkerchiefs are not at present supplied."

RUNCORN URBAN DISTRICT.—"All forms of tuberculosis became notifiable on February 1st, 1913. The following table gives the number of cases during 1913 and 1914:—

		1913.		1914.	
		Notified Cases.	Deaths.	Notified Cases.	Deaths.
Total No. of Tuberculosis Cases		160	34	57	27
No. of Cases of Pulmonary					
Tuberculosis	... ..	25	20	28	17
No. of Cases of other forms of					
Tuberculosis	... ..	135	14	29	10

"It was only natural that the compulsory notification of all cases of tuberculosis (pulmonary tuberculosis was made notifiable in 1911) should bring to light a large number of *old* cases of other forms of tuberculosis which had been under medical treatment for some time before the tuberculosis regulations came into force; this partly accounts for the large number of cases notified during 1913; while the figure for 1914 may be regarded as the more normal annual number of cases. But on comparing these figures with those of other Urban Districts in Cheshire one is immediately struck by the excessive number of cases of other forms of tuberculosis met with in the Runcorn Urban District.

"Table shewing the location of the disease in these cases:

Lungs	...	...	28
Bronchial Glands	...	...	1
Cervical Glands	...	...	18
Joints	...	...	6
Abdomen	...	...	1
Membranes of Brain	...	...	3

"A few remarks in explanation of these diseases and causes would not be out of place here. Tuberculosis is an infective disease caused by the bacillus of tuberculosis—a micro-organism which can be easily recognised microscopically. The products from the diseased organs contain this bacillus commonly in large numbers. It is endowed with considerable powers of resistance to physical agencies, so that in dark, dirty, badly ventilated rooms and other positions, it may remain alive for many months. Thus, in general, a well marked case of pulmonary tuberculosis occurring in a particular house, which is not in a satisfactory sanitary condition and is not periodically submitted to some suitable process of disinfection, marks the house as an infected house for months and may be years. Pulmonary tuberculosis is therefore essentially a *house* disease; a dirty-house disease; a disease which when once introduced into a dirty, badly ventilated, badly lighted house commonly claims one victim after another of the

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same and newly incoming families, almost to extermination. So much for the seeds of this fell disease; now we must consider the nature of the soil on which these seeds thrive. But firstly, it is necessary to state that the disease is never directly transmitted from parent to offspring—that is, the disease is not inherited in the strict sense of the word. What is inherited, is a disposition thereto; such a condition of the soil attends to encourage the growth of the bacilli of tuberculosis should once they gain access. Practically 80 per cent. of all apparently human beings by the time they have reached middle age, have been infected in the lungs with the bacilli of the disease; so one finds on examination after death from other causes than tuberculosis; this means that most persons are able to resist the attacks of this disease-germ; the human body in its simple natural healthy condition is capable of destroying these germs when introduced in such numbers as give rise to extensive tuberculosis in those living in the unnatural conditions of modern civilisation, so called. The chief conditions which render the soil favourable for the reception and growth of the tubercle bacillus are those which result from overcrowding, dusty occupations, dampness of dwellings, dirtiness and darkness (lack of sunlight) of houses, insanitary conditions, poverty with insufficiency of food, alcoholism and other diseased conditions particularly of the respiratory tract. From these facts it will be evident that in the prevention and treatment of pulmonary tuberculosis, the education of the public with regard to the measures to be adopted must play an important part. The value of a plentiful supply of fresh air and sunlight cannot be too strongly emphasised; the proper disposal of the bacilli-laden sputum must be insisted upon and suitable means of disinfection of houses and bedding of such cases adopted. An abundant supply of wholesome nutritious food particularly of *pure* milk is essential.

“The National Insurance Act made provision for the treatment of insured persons suffering from tuberculosis, but the body which is responsible for the administration of the Act is the County Insurance Committee. Every insured person notified as suffering from phthisis is visited by the Tuberculosis Medical Officer and he decides the form of treatment to be carried out. One fully realises that the establishment of tuberculosis dispensaries and the provision of sanatorium treatment is of the utmost importance, but it is certain that provision for the isolation of advanced cases of pulmonary tuberculosis and indeed all cases which expectorate numbers of tubercle bacilli, demonstrated microscopically in

the sputum, would prove most useful in preventing the spread of the disease. It is in this direction that the Local Sanitary Authority may exercise its powers, by frequent inspection of tuberculosis infected houses, by insisting on perfect sanitary conditions in such houses, by providing proper means for the disposal of sputum and in general by treating such patients as cases of infectious disease.

“Thus, there are two factors which are necessary for the establishment of the disease in the human lungs:—

- (1) The introduction of the specific germ—the tubercle bacillus and
- (2) A soil made suitable for the growth of these bacilli by certain conditions of the human environment.

“An illustration will be useful:—A shepherd lived for 30 odd years tending sheep the whole year round on the Manx hills. His shepherd cottage was on the hill side. From sunrise to sunset his day was spent in the pure open air; but from sunset to sunrise again, he closed himself with his family in his dark, dirty, badly ventilated cottage. His son contracted consumption in the town where he lodged and came home to die. The shepherd and two other members of the family subsequently fatally contracted the disease. Similar examples could be given from among the inhabitants of Run-corn. It is necessary to point out that many cases of consumption are concealed as cases of bronchial asthma, weak chest, chest disease, decline and so on which terms are often cruelly misleading.

“The compulsory notification of non-pulmonary cases of tuberculosis came into operation in February, 1913. The table already given shews the number of notifications received during 1913 and 1914. The forms of tuberculosis referred to are:—tubercular lymphatic glands (of neck, chest or abdomen), tubercular joints and bones (hip-joint disease, knee-joint, elbow joint disease, disease of the spinal column), tubercular meningitis (tuberculosis of the membranes of the brain), tubercular peritonitis and tubercular intestinal disease. It is now generally recognised in medical circles that while all cases of pulmonary tuberculosis in young adults are contracted as the result of the inhalation of tubercle bacilli in the fresh or dried sputum of a previous case of consumption; most of the cases of other forms of tuberculosis, particularly in children and as a sequel of some other disease, result from the ingestion of cow's milk containing tubercle bacilli, that is, milk from cows suffering from tuberculosis, generally of the

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udder, but occasionally of other organs, such as the lungs. For this particular reason, therefore, precautions should be taken to prevent the sale of tuberculous milk and should there be any suspicion that the milk supply may be tuberculous, the public should be instructed to heat milk to the boiling point before administering it as food to children and invalids.

“The Tuberculosis Order of 1913 was issued by the Board of Agriculture and came into operation on May 1st, 1913. This Order aims at the destruction of every cow found to be suffering from tuberculosis of the udder, or to be giving tuberculous milk, as well as of all bovine animals suffering from tuberculosis with emaciation. Notice has to be given to the Local Authority by the owner or a Veterinary Surgeon, of animals suffering from the above forms of tuberculosis and the examination of the animals is to be made by the Veterinary Inspector of the Local Authority. One part of the Order deals with the method of compensation in certain cases. The Milk and Dairies Act was passed in 1914, but its operation has been suspended by the Local Government Board until Oct. 1st, 1915. This Act will give to Local Authorities still greater powers of dealing with the milk supply. It is to be expected that the Order of the Board of Agriculture worked together with the new Milk and Dairies Act, 1914, will, in time, effectively check the supply of tuberculous milk. It follows from what has already been mentioned as to the sources of the tubercle bacilli causing cases of pulmonary tuberculosis and other forms of tuberculosis respectively—that the large numbers of other forms notified in the Runcorn Urban District during 1913 were probably associated with a vicious milk supply. An inquiry was made by a private individual into the wholesomeness of the milk supplied to the public and on the results of that inquiry a complaint was lodged with the Local Authority respecting at least two sources of tuberculous milk. The Local Authority successfully applied the remedy and the late Medical Officer of Health in his annual report for 1913 strongly recommended that all milk intended for the feeding of infants should be previously boiled. During the year 1914 several samples of milk supplied to Runcorn have been tested bacteriologically and all were found free from tubercle bacilli.”

SALE URBAN DISTRICT.—“Thirty-four cases of pulmonary tuberculosis were notified (same number as 1913) and ten cases of tuberculosis in other parts of the body. It is gratifying to know that a number of these cases recovered, or were very much improved by treatment in sanatoria, etc. and that many cases were, owing to the Insurance Act, under treatment in the

early stage of the disease and thus had a better chance of recovery than formerly. There were ten deaths during the year due to some form of tuberculosis (mostly of the lungs). The homes of the patients were visited and directions given to the relatives as to fresh air, open windows, sleeping alone, destruction of sputum, etc. Where death took place the homes were promptly disinfected."

SANDBACH URBAN DISTRICT.—"There have been two cases of phthisis reported during the year and one case of tubercular peritonitis. All cases of phthisis dealt with are first of all verified by examination for tubercle bacilli. The Union cases are taken into a special ward at Areld Workhouse Infirmary, are treated on sanatorium lines and suitable disinfectants and sputum flasks are supplied in all cases."

TARPORLEY URBAN DISTRICT.—"Two cases of pulmonary tuberculosis were notified during 1914. The pulmonary cases and two of 'other forms of tuberculosis' were visited, card of instructions were left, together with sputum flask, disinfectants and fumigating material. The Parish Nurse visits cases when required. There is no sanatorium or hospital accommodation in your district for phthisis patients. It is proposed to have a branch tuberculosis dispensary near Tarporley."

WILMSLOW URBAN DISTRICT.—"Seven cases of pulmonary tuberculosis and five of other forms of tuberculosis were notified. Twelve visits were made on receipt of primary notification. Twenty subsequent visits were made. Enquiries were made as to the existence of earlier unrecognised cases of tuberculosis in association with the notified cases. No arrangements were made or proposed for utilising the services of the tuberculosis officer or nurses for the detection of such unrecognised cases. Measures of cleansing and disinfection were carried out."

BUCKLOW RURAL DISTRICT.—"Of notifications received in 1914 there were 15 males and 10 females (pulmonary) and nine males and three females (non pulmonary). The ages were :—

Years.	Pulmonary.	Non-pulmonary.
0—1	—	1
1—5	—	—
5—15	6	3
15—25	3	5
25—35	8	1
35—45	5	2
45—55	—	—
55—65	2	—
65—	1	—

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“Three pulmonary and two non-pulmonary cases were sent into the Baguley Sanatorium by the Council and three pulmonary into other sanatoria by the County Insurance Committee. The distribution of the active cases at the end of the year was as under :—

		Pulmonary.	Non-pulmonary.
Dunham Massey	...	7	2
Timperley ...	...	4	5
Northenden	...	4	—
High Legh...	...	2	1
Northern Etchells	...	2	—
Warburton	...	1	1
Baguley ...	...	1	—
Styal ...	...	1	—
Ollerton ...	...	—	1
Partington...	...	—	1
Mobberley ...	...	—	1

“There are thus 19 townships without any cases ; five with only one case each ; two with two each ; one with three ; one with four and two with nine each. The three last named are the three with the largest populations ; in fact they comprise together 10,000 out of the 23,000 in the district. This incidence (roughly 1.5 per 1,000) cannot be considered heavy.”

CHESTER RURAL DISTRICT.—“There were 24 cases of pulmonary tuberculosis notified during 1914 and four other tuberculosis disease. Every care is used to prevent the spread of infection as set down earlier in this report under Public Health Tuberculosis Regulations, 1912. There is no sanatorium or hospital accommodation in your district for phthisis patients other than the Workhouse Hospital, but cases may be admitted into the Kingswood Sanatorium, Delamere Forest, which is just over your boundary.”

CONGLETON RURAL DISTRICT.—“Every case that is reported to me I visit and give instructions as to the best method to prevent the spread of the disease and also give anything necessary in the shape of sputum flasks or disinfectants. I am also having their milk supply inspected and a sample submitted to the bacteriologist, as I think anything that can be done to stamp out this ‘white man’s scourge’ is advisable.”

DISLEY RURAL DISTRICT.—“Eleven cases of tuberculosis have been notified. There were four deaths from phthisis pulmonalis. The death-rate per 1,000 from phthisis was 1.3. I have visited many of the cases of tuberculosis and taken note of

any insanitation. The farm on which tuberculous milk was reported was visited by the Sanitary Inspector and instructions given to remedy sanitary defects. No arrangements have been made for the detection of unrecognised cases of tuberculosis, associated with notified cases of the disease. No nurse has been appointed for the above purpose.

“The sanitary condition of patients’ houses has been investigated. One case of insanitation was reported to the Council and has been partially remedied. In other cases the patients were instructed how to make the premises more hygienic. Two cases remain in hand and will be brought to your notice in due course. Circulars on the hygienic aspect and treatment of the disease were distributed to the cases of phthisis visited. Shelters, sputum flasks, &c., have not been provided.”

NANTWICH RURAL DISTRICT.—“Seventeen deaths of residents of the Rural District were ascribed to pulmonary tuberculosis—seven more than in 1913. It is equivalent to a death-rate of 0.6 per 1,000 living. The rates for the preceding ten years were :—0.3, 0.6, 0.8, 0.7, 0.3, 0.5, 0.49, 0.6, 0.7 and 0.39. Five cases of other tubercular diseases occur in the mortality returns; four of the deaths were of persons of 65 years of age and upwards.

“Nineteen cases of pulmonary tuberculosis were notified. This number includes two notifications of cases of admission to sanatoria and one notification of discharge. This is five fewer cases than in 1913. Of these 13 were males and six females. Soon after receipt of a notification the patient’s home is visited, with a view to obtaining information as to the probable source of infection, the probable duration of illness prior to notification, the bedroom accommodation in the house, the amount of isolation possible, the care taken to prevent the spread of infection (either through the sputum, eating utensils, or otherwise), the ventilation of the house and bedrooms. The presence of dampness and other sanitary defects are also enquired into. Such an inquiry occupies a large amount of time. It is not easy to get accurate information as to open windows. One was sometimes told that they were always kept open, but have just been closed for one reason or another. I think it may be said quite accurately that every improvement in the housing conditions of the people may be counted to the good in the mitigation of this scourge. The mere structural improvement of houses, however, will not in itself be sufficient. People must learn to live and sleep in rooms with open windows. If this course were adopted the mortality from this disease would be considerably reduced. Most patients were found

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to be taking due precautions with their sputum. The opportunity was taken to advise the patient and those living with him of the dangers of spreading infection, and how to minimise these dangers. A spit-cup and disinfectants were supplied for indoor use and a pocket flask for out-door use. Besides being advised verbally, printed instructions were left in each house and something said on the most important points. During the interview a list of the members of the household was taken and if there was any history of ill-health, or other suspicious circumstances, they were advised to consult their family doctor for examination as contacts. In this way something has been done in the detection of early cases, but there is a disinclination to undergo examination. I think special efforts will be necessary to overcome this. The bedrooms of all private houses where deaths from pulmonary tuberculosis were certified to have occurred, or after a case had been removed to a sanatorium, etc., were disinfected. The floors were scrubbed generally with chloride of lime solution, the walls limewashed, the bedding and clothes were put into water containing a suitable quantity of disinfectant, or otherwise disinfected. In his last report your Medical Officer of Health called attention to the need for some place other than the Workhouse Infirmary for the treatment of advanced cases and suggested that a suitable place could be provided on land adjacent to the Nantwich Isolation Hospital. A scheme for such provision for 14 patients had been drawn up and submitted to the County Council, but up to the present no visible progress has been made. Some of the cases notified were anxious to be admitted into a sanatorium and (as insured persons), expected to be sent to such an Institution. Some who were unable to get into a sanatorium were, in the interests of others, reluctantly induced to go to the Union Infirmary. Undoubtedly the chief way in which consumption is spread is from advanced cases which are not properly isolated or cared for, handing on the infection to other members of their household.

“OTHER FORMS OF TUBERCULOSIS. Seven such cases were notified. They included cases of tuberculosis of the lymphatic glands, hip and peritoneum.”

MACCLESFIELD RURAL DISTRICT.—“Seven cases of the pulmonary form of this disease were notified during the year—five males and two females—and four cases—two males and two females—of non-pulmonary tuberculosis have been notified. Of the latter the parts affected in each case were :—

Coccyx	...	...	...	1
Glands of the Neck	...	...	...	1
Hip ...	...	...	...	1
Lumbar Vertebrae	...	...	...	1

"Two of these are now under treatment in hospital. Two cases of pulmonary tuberculosis were in persons belonging to other places, who had taken up their residence in this district temporarily. Each of these cases has been investigated by the Medical Officer of Health on receipt of the primary notifications; subsequent visits being paid were found necessary. Printed and verbal instructions have been given as to the means to be used to prevent the spread of the infection. In each case of the pulmonary disease, the patient was occupying a separate bedroom and was exercising due care in the destruction of the sputum. The arrangements for the detection of unrecognised cases and for the utilization of the Tuberculosis Officer or Nurses have so far been left to the County Council Authorities, who are also concerned in provision of sanatoria and dispensaries. Disinfectants are supplied by the Rural District Council, but no provision is made for the supply of sputum flasks, paper pocket handkerchiefs, extra nutriment, etc."

MALPAS RURAL DISTRICT.—"There were five cases of pulmonary tuberculosis notified during 1914. There is no sanatorium or hospital accommodation for phthisis patients in your district and under the proposed County scheme for dispensary treatment, Malpas patients will have to go to their nearest or most convenient dispensary, which, in all probability, will be Chester."

NORTHWICH RURAL DISTRICT.—"There were 42 notifications received during the year, affecting some 34 persons, 28 being phthisis and 14 other forms of the disease. One was dead when notified. Some have been notified more than once and eight were notified from hospitals and sanatoria to which they had gone for treatment. Of the 'other forms' four were of cervical glands, two of the skin, two of the peritoneum, one each of the brain, ankle, spine and testicle. The number of deaths registered from phthisis was 13, while nine were from other forms of tubercle. All cases notified from the district are visited, unless otherwise requested and disinfectants supplied, advice given verbally, separate room for patient advocated, sanitary defects remedied and premises disinfected. There is no Health Visitor, the work being done by the Inspector."

TARVIN RURAL DISTRICT.—"There were seven cases of pulmonary tuberculosis notified during 1914. There were sanitary inspections of patients' houses and disinfections done. Printed forms, fumigating material, disinfectants and sputum flasks are issued in your district, as well as the districts of Tarporley, Chester Rural District and Malpas Rural District, to all consumptive patients notified, advising them how to live hygienically

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and prevent further infection in others—*vide* Public Health Tuberculosis Regulations, 1912, earlier on in this Report. There is no sanatorium or hospital accommodation in your district for phthisis patients.”

TINTWISTLE RURAL DISTRICT.—“Five cases of pulmonary tuberculosis have been reported during the year. Two cases in Crowden and three in Tintwistle. One case proved fatal and the others are being treated by their own medical attendants. Antiseptics are supplied by the Local Authority and on the termination of a case the house is thoroughly disinfected. Pamphlets are also sent to each case, giving the parents all instruction in order to prevent the spread of the disease.”

WIRRAL RURAL DISTRICT.—“Thirty cases of tuberculosis, 22 pulmonary and eight other forms, were notified from 11 townships. The statement made by your Medical Officer of Health in previous years still holds good, that the number is greatly increased by those who wish to derive climatic benefit having taken up their residence in the district. Five of these cases were notified by the School Medical Officer and excluded from school in the hope that the parents would at once seek medical advice with regard to the condition.”

Section VI.—Isolation Hospitals, &c.

The Administrative County is well provided with Isolation and Small-pox Hospitals. A complete list of these was given in my Annual Report for 1910 and a note is contained in Table III., at the end of this Report, of the accommodation provided in or available for the several districts in the County. That they are fully utilised by the majority of the districts is evidenced by the following figures shewing the number of cases of those diseases which are usually treated in such hospitals which were notified and the number of such cases which were actually removed to hospital for treatment:—

		Cases Notified.		Cases Removed to Hospital.
Scarlet Fever ...	...	2,533	...	1,654
Typhoid Fever	...	89	...	41
Diphtheria ...	...	865	...	521

There are a few districts in which I am not quite satisfied with the provision the Councils have made in the matter of

isolation and small-pox hospital accommodation. It is possible that further accommodation will before long be required in the north-eastern corner of the County. Time has not permitted me to go as fully into this matter as I should have done under more favourable circumstances, but the question is likely to become more pressing if the Hyde Corporation should make arrangements to transfer the use of a Convalescent Scarlet Fever block of their Isolation Hospital to the County Council for use for "hospital" cases of tuberculosis. I have inspected the several Isolation Hospitals on a number of occasions and can testify to the excellent work they are doing and to their capable management. I append some notes on the Isolation Hospital accommodation for all the districts in the County.

CONGLETON URBAN DISTRICT.—"Two cases of diphtheria, one of enteric fever and 88 of scarlet fever were removed to the hospital. With a few exceptions, only cases that cannot be reasonably well isolated at home are sent and this rule has been found to work very well for some years now and notwithstanding much that has been said recently against it, the Medical Officer takes this opportunity of letting it be known that he has not any intention of departing from it. The primary object of the hospital is not to receive patients for the purpose of treatment and of making them comfortable, or of relieving the parents of their responsibilities, but solely to prevent them doing harm to others, although when there, they are treated so well and made so comfortable that many of them would like to remain indefinitely. During the outbreak of scarlet fever, the hospital was so full several times that patients could not be received and unfortunately each time cases occurred in houses with two small bedrooms and 10 or 12 inmates and had all cases as they occurred been sent, as a member of the Sanitary Committee suggested, the place would have been constantly blocked, not only against cases such as those just referred to, but against the cases of all the other combining authorities, by patients who could have been perfectly well isolated at home."

CREWE MUNICIPAL BOROUGH.—"The small-pox hospital is situated on the north side of Pym's Lane, off Minshull New Road, upon the Corporation farm. The original premises provide accommodation for the Caretaker and his family, two bedrooms for patients and two suitable rooms for a nurse. In 1903 a small galvanized iron pavilion was fitted up in the farm yard and in this there are two commodious wards. There are twelve beds. The hospital has not been occupied during the year but has been kept ready for any emergency.

ISOLATION HOSPITALS.

"The isolation hospital has been in use since October 16th, 1897, and was erected at a cost of £9,500 (cost of site included). It consisted originally of five blocks and the patient accommodation was 28 beds. Owing to the rapid growth of the population and the increasing number of patients treated it was found necessary to enlarge the hospital. The additions commenced in 1903, were ready for occupation by March 30th, 1904, and comprised a diphtheria pavilion, two wards and two private rooms and administrative accommodation. The cost of these extensions was £3,066. In 1909 a revolving open-air shelter was erected for the treatment of pulmonary tuberculosis, at a cost of £46 10s. 4d. (exclusive of beds).

"The accommodation is now 42 beds distributed as follows:—

Typhoid Pavilion...	...	...	10 beds
Scarlet ,,	...	...	16 ,,
Diphtheria ,,	...	...	12 ,,
Observation block	...	...	2 ,,
Open-air shelter	...	...	2 ,,

"The full hospital staff consists of the matron, nine nurses (one sister, two staff, three assistant and three probationer nurses) and six maids (cook, housemaid, scullery maid, two ward maids and laundry maid). There is a non-resident ambulance attendant, who also acts as disinfecter for the Health Department, a porter and a gardener. Occasional extra assistance has to be obtained in the laundry.

"The cases dealt with in 1914 were:—

	In Hospital Dec. 31st, 1913.	Admitted.	Discharged.	Died.	In Hospital Dec. 31st, 1914.
Scarlet fever ...	16	118	125	2	7
Diphtheria ...	16	84	91	2	7
Enteric fever ...	—	3	2	1	—
Pulmonary tuberculosis ...	—	9	5	2	2
Puerperal fever ...	—	1	1	—	—
Tonsillitis ...	—	1	1	—	—
Broncho-pneumonia ..	—	1	—	—	1
Total ...	32	217	225	7	17

“For the following statement of expenditure for the year ending 31st December, 1914, I am indebted to the kindness of the Borough Treasurer:—

EXPENDITURE.

	£	s.	d.	£	s.	d.
Salaries of Matron, Nurses, etc.				397	3	1
Porter's Wages (proportion)				94	11	6
Nurses' Uniform				20	3	5
Maintenance of Patients and Staff:—						
Groceries	147	9	7			
Butchers' Meat	157	18	5			
Fish, Ice, etc.	14	8	2			
Vegetables	18	3	10			
Milk	95	7	11			
Bread... ..	40	4	6			
Stimulants	2	7	0			
	<hr/>			475	19	5
Druggists' Sundries and Antitoxin ...				70	10	4
Drapery, Crockery, Hardware, Cleaning Materials, etc.... ..				80	0	10
Repairs to Vans, Laundry Fittings, Dis- infector, Electric Light Fittings, etc.				28	11	6
Maintenance of Buildings, Painting, etc.				76	8	4
Gas				18	4	2
Electricity				125	3	6
Water				14	2	4
Rates and Taxes				72	5	8
Insurance				7	16	8
Telephone Charges... ..				20	5	9
Fuel... ..				167	10	7
Cultivation of Grounds				64	4	10
Horse Hire for Ambulance				90	0	0
Interest on cost of Electric Main				13	11	9
Printing, Stationery and Advertising ...				11	16	1
Furniture and Repairs				22	9	3
Weighing Machine... ..				3	18	9
Health Insurance Contributions				8	16	2
Sundries... ..				11	6	3
				<hr/>		
				£1,896	10	2
				<hr/>		

ISOLATION HOSPITALS.

"The above statement does not include any repayment of principal and interest.

INCOME.

	£	s.	d.
Removal and Maintenance of Patients (Hospital) ...	22	4	3
" " " (Shelter) ...	105	19	6
Disinfecting, etc....	4	0	0
Contribution from Cheshire County Council under Isolation Hospital Acts ...	212	16	8
	<u>£345</u>	<u>0</u>	<u>5</u>

SMALL-POX HOSPITAL EXPENDITURE.

	£	s.	d.
Rates ..	5	14	0
Fuel ...	2	15	0
Rent ...	20	0	0
	<u>£28</u>	<u>9</u>	<u>0</u>

"The cost of maintenance per case, the average daily number of patients and their average residence, etc., since the opening of the hospital are shewn in the following table:—

Year.	PATIENTS.			Total Expenditure			Average cost per patient.			Daily cost per head for provisions			Provisions.		
	Total admitt- ed.	Average daily number.	Average residence in days.												
				£	s.	d.	£	s.	d.	s.	d.	£	s.	d.	
1898	68	9.1	48.0	1020	2	0	15	0	0	2	4	378	19	6	
1899	73	9.6	48.0	1083	7	1	14	16	9	1	11½	347	4	9	
1900	158	20.3	47.0	1161	11	8	7	7	0	1	1½	417	19	0	
1901	129	17.0	48.0	1367	0	10	10	12	0	1	5½	452	18	0	
1902	102	11.7	42.0	1173	5	9	11	10	0	1	5½	314	10	7	
1903	169	22.4	48.5	1404	6	7	8	6	2	0	11½	398	19	7	
1904	298	34.2	42.0	1642	14	3	5	10	3	0	10½	561	2	4	
1905	160	16.7	38.5	1592	0	3	9	19	0	1	7½	488	16	2	
1906	141	16.0	41.6	1408	12	9	9	19	9	1	3½	384	15	8	
1907	420	38.8	32.7	1893	9	1	4	10	1	0	10½	601	8	3	
1908	285	31.3	41.1	2182	12	9	7	13	1	1	1½	661	16	7	
1909	254	25.6	36.8	1779	18	11	7	0	1	0	11½	450	13	10	
1910	401	36.6	35.1	1907	2	9	4	15	1	0	9½	523	6	7	
1911	326	33.0	37.5	1845	13	1	5	13	2	0	9½	494	5	11	
1912	202	23.0	38.8	1737	9	1	8	12	1	1	0½	444	11	1	
1913	224	20.2	35.5	1722	17	9	7	13	9	1	1½	403	1	1	
1914	217	25.3	45.6	1896	10	2	8	14	9	1	0½	475	19	5	

N.B.—The above calculations of cost do not include repayment of principal, nor payment of interest on capital.

“The average length of stay in hospital has been:—

Scarlet fever patients	...	...	...	...	44.8 days
Diphtheria and membranous croup patients,					
excluding cases which died	...	...	..		36.1 „
Diphtheria and membranous croup patients,					
including cases which died	...	...	...		36.1 „
Enteric fever patients	...	...	...	...	43.0 „
Puerperal fever patients	...	...	...	...	54.0 „
Pulmonary tuberculosis patients...	...	...	...	...	63.8 „

“The disinfection of bedding and clothing from infected houses and from the hospital wards is carried out in the Washington Lyon Disinfector. In addition to this, 115 sets of bedding, 1,078 articles from the Cottage Hospital, infected by septic discharges, were also dealt with, so that a considerable amount of preventative work has been carried out in this department.

“The open-air shelter was in more continuous use in 1914 than in the previous year. Of the nine patients admitted, seven were sent in and maintained by the County Insurance Committee. When the extension to the open-air accommodation is erected much more good work can be accomplished.”

DUKINFIELD MUNICIPAL BOROUGH.—“We have arrangements with the Hyde Hospital Authorities for four beds, two for small-pox and two for other infectious cases, but we have never had any difficulty in arranging for more cases to be admitted. The Hyde Fever Hospital has beds quite sufficient to allow of the treatment of all the infectious cases we are likely to send to hospital. All our small-pox cases are sent to hospital and other infectious cases are also sent at the discretion of the Sanitary Authority. Six cases of typhoid fever and 143 of scarlet fever were sent to hospital during the year. We use the disinfecting apparatus at the Hyde Hospital to disinfect bedding, clothing, &c. and the disinfecting baths there when required.”

HYDE MUNICIPAL BOROUGH.—“Four hundred and fifty-eight cases of infectious diseases belonging to the borough have been isolated and treated in the Hyde Isolation Hospital during the year. Four hundred and forty-five of these cases were scarlet-fever, seven diphtheria and six enteric fever. The number of cases

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of each disease belonging to the borough, which were treated in the hospital, was as under :—

Disease.	Cases.	Deaths.
Scarlet Fever ...	445	9
Enteric Fever ...	6	1
Diphtheria ...	7	0

The total number of cases of each disease from all districts treated in hospital, was as under :—

Disease.	Cases.	Deaths.
	1914.	1914.
Scarlet Fever ...	540	16
Enteric Fever ...	10	2
Diphtheria ...	13	1
Isolation ...	1	0

Cases received in hospital from outside districts :—

District.	Scarlet Fever.	Enteric Fever.	Diphtheria.	Isolation.
Denton ...	37	0	0	0
Droylsden ...	17	2	0	1
Bredbury and Romiley	16	1	0	0
Audenshaw ...	5	0	0	0
Hazel Grove ...	4	0	1	0
Disley ...	3	0	3	0
Compstall ...	2	1	1	0
Dukinfield ...	3	0	1	0
Marple ...	3	0	0	0
Whaley Bridge ...	2	0	0	0
Ashton-under-Lyne ...	3	0	0	0

STALYBRIDGE MUNICIPAL BOROUGH.—“ Unfortunately we are still without isolation hospital accommodation for infectious diseases other than small-pox. For small-pox we are sufficiently provided, along with the neighbouring authorities of Ashton-under-Lyne, Hurst, Limehurst and Audenshaw, at Hartshead. The hospital proper is a corrugated iron building, containing two wards with ten beds in each ward and with annexes for earth-closets and sinks and kitchen and bath-room. The old farm

house adjoining the hospital has been adapted into an administration block for the matron and nurses and a cottage for a caretaker. Some outbuildings of the farm have been transformed so as to furnish a laundry, a disinfecting chamber with a Thresh's disinfecter, a storeroom, a dispensary and day-rooms and bedrooms for convalescents and nurses, with bathrooms and w.c. A mortuary with two slabs is provided well away from the hospital. The water supply is derived from the surrounding land and collected in two large tanks, from which it is conveyed by galvanised iron service pipes. The water has been analysed and declared quite fit for all domestic purposes.

"The site at Hartshead belonging to the Joint Small-pox Hospital Board is an extensive site comprising several plots and measuring in all some 40 acres and only a small portion of it is occupied by the small-pox hospital with its administration block and outbuildings and here, I maintain, is ample scope for the erection of other blocks, in which provision should be made for other infectious diseases, notably scarlet fever, diphtheria and typhoid fever. It has frequently been a matter of regret and of anxiety to me, when such cases have occurred in dwellings where anything approaching isolation was altogether unattainable, or where it was impossible to check the popping in and out of inquisitive neighbours, that we were unable to have the patient removed to a hospital both for the benefit of the sufferer and for the protection of the public.

"On November 26th, 1908, at the Ashton-under-Lyne Town Hall, a Local Government Board Inquiry was held *re* the application of the Joint Small-pox Hospital Board to become a Joint Hospital Board with power 'to provide, maintain and manage hospital accommodation for the reception of cases and of infectious diseases, other than small-pox,' but the sanction of the Local Government Board to this application is withheld at present, as the Local Government Board desires to be satisfied that the buildings which the Joint Hospital Board contemplate erecting will be of a sufficiently substantial character for their exposed situation. With the object of minimising as much as possible the individual expenditure of the constituent authorities the Joint Hospital Board invited the co-operation in the scheme of other neighbouring authorities, but up to the present their appeal has not met with success. It is sincerely to be hoped that before long satisfactory arrangements will be made so that the scheme may be efficiently carried out.

"The hospital has only been in use on the rare occasions when small-pox has happened to make its appearance in one or more of

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the districts of the Joint Hospital Board, so that the hospital has to be kept in order and in readiness for lengthy periods during which there are no patients to be admitted. The Local Government Board have therefore suggested that during such times the hospital might well be utilised as a sanatorium for those cases of pulmonary tuberculosis which are suitable for treatment in the open situation and the bracing atmosphere which the hospital affords. The Joint Hospital Board are quite agreeable to comply with this suggestion, but are anxious also to obtain sanction to their using the hospital for infectious diseases other than small-pox or pulmonary tuberculosis as occasion may arise. No such sanction has as yet been obtained and the matter remains in abeyance and the hospital unfortunately cannot be made use of.

“Although we are not yet suitably provided with isolation accommodation for such cases as it would be desirable to remove, nevertheless the borough now possesses an up-to-date disinfection station. This station is situated at the Flatts, in proximity to the destructor. It contains a receiving room, a bath room, a dressing-room and a discharging room, through which ‘contacts’ can be passed so that they are then free to mingle again with their fellow men, while disinfection of clothing or bedding can be efficiently carried out by saturated steam under pressure in a ‘Nottingham’ steam disinfector, fitted with vacuum and exhaust apparatus of the latest type. It has been most valuable for the disinfection of bedding and other articles in cases of scarlet and typhoid fevers, as well as of puerperal fever and phthisis, thereby assisting most powerfully in the control and prevention of infectious disease.

ALDERLEY EDGE URBAN DISTRICT.—“This is one of the constituent authorities of the Bucklow Joint Hospital Board.”

ALSAGER URBAN DISTRICT.—“The Isolation Hospital is situate at West Heath, near Congleton. I am glad to say we have escaped serious epidemics, we have had only five cases treated there, though other outside districts had contributed so many cases towards the end of the year as to render it impossible for the hospital to receive further scarlet fever cases.”

ALTRINCHAM URBAN DISTRICT.—“The Sinderland Isolation Hospital, in Dunham Massey, was erected by the Council and opened in January, 1911 and provides for scarlet fever, 20 beds, diphtheria, five beds, typhoid fever, five beds. There are also two observation wards and all the necessary buildings and plant for the disinfection or destruction of infected articles.

“A separate arrangement for small-pox cases has been made with the Manchester City Council for the reception of cases from this district.

“There were admitted to the hospital from January 1st to December 31st, 1914 (inclusive of both dates), 50 cases, classed as follows :—scarlet fever, 44 ; diphtheria, 6 ; typhoid fever, 0.

“Average length of stay—scarlet fever, 37 days ; diphtheria, 35 days.

“Remaining in hospital, December 31st, 8 patients—6 scarlet fever, 2 diphtheria.

“An arrangement exists to receive cases from Bowdon Urban District.”

ASHTON-ON-MERSEY URBAN DISTRICT.—“This district is one of the constituent authorities of the Bucklow Joint Hospital Board.”

BOWDON URBAN DISTRICT.—“Cases are sent to the Isolation Hospital at Altrincham by arrangement.”

HIGHER BEBINGTON URBAN DISTRICT.—“The Wirral Joint Hospital Board (to the expenses of which you are a contributory body) supply the necessary isolation accommodation for infectious diseases. The number of beds provided and the diseases treated are as follows :—

Greasby Hospital	...	8 beds, Small-pox.
Clatterbridge Hospital		12 beds, Diphtheria.
		6 beds, Typhoid.
		40 beds, Scarlet Fever.
		2 beds, Observation Block.
Pensby	... ..	20 beds, Convalescent Scarlet Fever Patients.

“The contribution to the common fund of the Joint Hospital Board to 31st March in the years 1911—1914, and the number of patients treated were as follows :—

1st April, 1910, to 31st Mar., 1911.	1st April, 1911, to 31st Mar., 1912.	1st April, 1912, to 31st Mar., 1913.	1st April, 1913, to 31st Mar., 1914.
1911—2 cases, £68/11/2	1912—8 cases, £11/0/10	1913—14 cases, £92/4/9	1914—14 cases £78/17/5

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LOWER BEBINGTON URBAN DISTRICT.—“The Wirral Joint Hospital Board supply the necessary isolation accommodation for infectious diseases. There has been no deficiency of accommodation for infectious cases. Arrangements have been made with the hospital officials whereby each case is directly notified by telephone on admission. A daily report is received by the Inspector at the Council Offices of the progress of patients in the hospital and a list is published on the notice board for the convenience of the guardians of the children.

“The contributions to the common fund and numbers of patients treated in the Infectious Diseases Hospitals were as follows:—

1st April, 1910, to 31st March, 1911 (81 patients)...	£603	19	2
1st April, 1911, to 31st March, 1912 (64 patients)...	805	14	0
1st April, 1912, to 31st March, 1913 (33 patients)...	782	1	2
1st April, 1913, to 31st March, 1914 (134 patients)	686	10	10

“During the past year a large amount of bacteriological work has been done for the Joint Hospital Board at the Liverpool University Laboratory.”

BOLLINGTON URBAN DISTRICT.—“Hospital accommodation is provided for as in previous years at the Isolation Hospital of the Macclesfield Borough. There are held there, at the disposal of this Council, two beds in the Small-pox Isolation Block and four beds in the other wards for such diseases as enteric fever scarlet fever and diphtheria. Your Medical Officer again wishes to express his gratitude and thanks to Dr. Marsh, Medical Officer of Health of the Borough, for his unfailing kindness and assistance in dealing with the cases that have required removal to the hospital during the year.

“The fees paid to the borough for treatment of 11 patients sent to the hospital amounted to £89 9s. 6d. Beyond this there is the annual retaining fee for the beds in the Small-pox Hospital, which amounts to £75 13s. 4d.”

BREDBURY AND ROMILEY URBAN DISTRICT.—“There is no hospital in the district, but there are several very good ones in the neighbouring towns, of which use is made when required. The infectious diseases' hospital is in Hyde and we have an agreement whereby, for an annual payment, four beds are placed at our service, three in the new buildings for ordinary cases and one in the old block for small-pox. Further

beds can also be utilised for an additional payment. This accommodation has been ample hitherto and there has never been any difficulty in getting our cases admitted. The Union and Union Infirmary are situated in Stockport, where there is also a good general Infirmary. Patients from this district are also admitted to the Manchester Royal Infirmary, Manchester Royal Eye Hospital and the special hospitals for women and children in Manchester. The isolation hospital accommodation at Hyde is sufficient and good; it is under the care of Dr. Bennett, Medical Officer of Health for Hyde, and a lady matron, Miss Priestley, who have both been many years in their posts and give the best of attention to the patients. There has been no difficulty in getting our cases admitted without delay and I have not seen any overcrowding there on any of my visits. There is also a good disinfecting apparatus for bedding, midwives' and nurses' clothes, etc. To assist in the prompt treatment of diphtheria the Council supplies antitoxin serum free to necessitous cases and they are also taken to the hospital when proper isolation is impossible at their own homes."

BROMBOROUGH URBAN DISTRICT.—"Hospital accommodation for acute infectious diseases is met by the Council, being one of the constituent authorities of the Wirral Joint Hospital Board. Fifteen cases were treated at Clatterbridge.

"Bromborough Pool Village has an infectious disease hospital of its own and sixteen cases have been admitted for treatment there during the year."

BUGLAWTON URBAN DISTRICT.—"This is one of the constituent districts using the West Heath Sanatorium, near Congleton."

CHEADLE AND GATLEY URBAN DISTRICT.—"In 1903 your Council entered into an agreement with the old Withington Urban District Council which has now been incorporated into the City of Manchester, for retaining three beds at their Baguley Sanatorium for cases of scarlet fever, diphtheria and enteric fever. This was continued up till 1912 when your Council entered into arrangements with the Corporation of the City of Manchester for retaining three beds at their Monsall Fever Hospital as the Baguley Sanatorium had been converted into a sanatorium for tuberculous patients. This has been sufficient for the needs of the district. On several occasions when our beds had been occupied urgent cases have been taken in by the courtesy of the Medical Superintendent.

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"For cases of small-pox, in 1902, your Council jointly with the then Heaton Norris Urban District Council erected a temporary iron hospital for eight beds on the waste land near the sewage outfall works. Now that the Heaton Norris District has been incorporated with the Stockport County Borough the agreement still holds with this Corporation. Although quite ready for occupation it has never been used.

"The Barnes Convalescent Hospital send all their cases to Monsall Fever Hospital. The Royal Lunatic Hospital send cases to the Monsall Fever Hospital or can isolate them in one of their detached houses. The Warehousemen and Clerks Schools have their own sanatorium. Their cases are also sent at times to the Monsall Fever Hospital.

"Thirty-four cases were sent in all to Monsall Fever Hospital as compared with fifteen in 1913. Of the thirty-four cases seventeen belonged to the district proper and nineteen went from the Barnes Convalescent Hospital. The cost of maintenance of these patients was £156 which does not include the retaining fee of £63 and the cost of removing the patients which was £14 14s. 0d. The average length of stay at the hospital for each patient is 52 days.

"Owing to the remarks made repeatedly in my former annual reports, at the end of the year 1911, enquiries were made by the Local Government Board as to what your Council were doing in the matter of providing a steam disinfecter. Your Council then made arrangements with the Stockport Corporation whereby all bedding and articles of clothing can be sent to the Stockport Corporation Disinfecting Station to be passed through the steam disinfecter. This arrangement continues to work satisfactorily and is sufficient for the needs of the district. Forty-eight houses were disinfected after cases of infectious disease and the cost of sending bedding and other articles to be disinfected by steam was £12 16s. 6d., as compared with £26 in 1913. Each case costs about 15/-. As far as I can see this is the most economical method that we can adopt."

COMPSTALL URBAN DISTRICT.—"The Council have an arrangement with the Hyde Corporation by which cases requiring isolation can be removed and treated at the Hyde Isolation Hospital. The Council retain one bed and can send other cases if necessary. This is sufficient for the district. Two cases of scarlet fever, one of diphtheria and one of typhoid were isolated at the hospital during the year."

ELLESMERE PORT AND WHITBY URBAN DISTRICT.—“The Wirral Joint Hospital Board supply the necessary isolation accommodation for infectious diseases.

“The hospital accommodation has been sufficient throughout the year. The common fund expenses charged to Ellesmere Port from 1911—1914 were as follows:—

1st April, 1910, to 31st March, 1911—45 patients:
£263 12s. 5d.

1st April, 1911, to 31st March, 1912—33 patients:
£463 14s. 4d.

1st April, 1912, to 31st March, 1913—67 patients:
£459 18s. 0d.

1st April, 1913, to 31st March, 1914—91 patients:
£429 7s. 11d.”

HALE URBAN DISTRICT.—“This is one of the constituent authorities of the Bucklow Joint Hospital Board.”

HANDFORTH URBAN DISTRICT.—“This district can have the use of the Stockport Isolation Hospital when occasion arises.”

HAZEL GROVE AND BRAMHALL URBAN DISTRICT.—“All infectious cases which cannot satisfactorily be isolated and nursed at home are sent to Hyde Isolation Hospital, with whom the Council have an undertaking for the provision of two beds, for a certain sum per year. More are available if the occasion should arise.”

HOLLINGWORTH URBAN DISTRICT.—“The only isolation hospital in Longdendale is situated on Mottram Moor, the ownership being vested in the three Councils of Mottram, Hollingworth and Tintwistle. Only one case has ever been admitted and home isolation has been found to be eminently satisfactory in all cases up-to-date.”

The following is a note made by me on the occasion of my last visit to this hospital:—

“The joint hospital for the Hollingworth Urban District, Mottram Urban District and Tintwistle Rural District is situated on about two acres of land in Mottram-in-Longdendale. The site is enclosed by a single wire fence which does not afford very much protection against undesirable visitors. The hospital is a corrugated iron and wooden erection with

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brick foundations and consists of two wards one at each end of the building separated by a central administration department. Each ward measures approximately 17ft. 6in. by 18ft. by 11ft. and there are eight beds provided with bedding to accommodate twelve beds. There are four windows in each ward provided with hopper openings at the top. Opening off each ward with a cross ventilated lobby is a bath room and earth-closet. The wards are heated by means of coal fire stoves. The administration section consists of a fair-sized kitchen with a scullery leading off it and two nurses' rooms on the opposite side of the corridor. There is a good kitchen range and a stove is fixed in the nurses' rooms. There are separate entrances to each ward at the end of another separate entrance in the middle building for transmission, etc. Hot water is laid on to the baths from the kitchen range. Gas is laid on to every room. There is one out-building which contains wash-house, coke store and ambulance shed, coal and disinfectant store and outside w.c. The ambulance consists of an old four wheeler, the internal arrangements of which are being adapted for ambulance purposes. Town's water is laid on. The sewage is conducted into a smallish settling tank situated at the lowest portion of the site and from this is irrigated on the land, some of which belongs to the hospital and some to a farmer. The hospital is approached by a fairly well-kept road. It is stated that the hospital has only been used on one occasion since its erection, this being in connection with a suspected case of small-pox.

The Sanitary Inspector for the Mottram Urban District visits the hospital periodically and has the general care of it, employing a woman for cleaning when necessary."

HOOLE URBAN DISTRICT.—"Arrangements exist with the City of Chester by which in addition to the four beds retained by this Council in the City Isolation Hospital at Sealand, we are allowed two additional beds should occasion require, provided that in the opinion of the Medical Officer of Health there shall remain after admission ample provision for all cases received or likely to be received from the city and that in respect of such additional patients we as a Council shall pay the usual maintenance charges as fixed by existing agreement and in lieu of any retaining fee, a sum of ten shillings per patient for each week, or portion of a week, that such patient is in the hospital. These arrangements have been quite satisfactory, no difficulty having been experienced in obtaining hospital accommodation for such of our cases as required this."

HOYLAKE AND WEST KIRBY URBAN DISTRICT.—“The Wirral Joint Hospital Board supplies the hospitals for this area.

“Forty-five patients were treated in the Clatterbridge Hospital during the year, including five from the Children’s Convalescent Home, West Kirby and two from the Hoylake Day Nursery and the accommodation was at all times sufficient for the demands made upon it.

“The contribution of Hoylake and West Kirby to the funds of the Joint Hospital Board in the financial year (1st April, 1913, to 31st March, 1914) was £1,078 8s. 9d., out of a total expenditure of £3,985 19s. 9d., as against £1,247 14s. 4d. out of a total expenditure of £4,505 16s. 4d. in 1912-13, for the same period.”

KNUTSFORD URBAN DISTRICT.—“This is one of the constituent authorities of the Bucklow Joint Hospital Board.”

LYMM URBAN DISTRICT.—“The isolation hospital is inspected at intervals and kept ready for immediate use. It was used during the year for diphtheria and scarlet fever.”

MARPLE URBAN DISTRICT.—“Cases of infectious disease from this district are sent to the Hyde Infectious Disease Hospital when necessity arises.”

MIDDLEWICH URBAN DISTRICT.—“This is one of the constituent authorities of the Joint Hospital Committee, having an isolation hospital at Davenham and a small-pox hospital at Marbury.”

MOTTRAM URBAN DISTRICT.—“This district has the use of a rarely occupied small-pox hospital on Mottram Moor (see under Hollingworth).”

NANTWICH URBAN DISTRICT.—“This district is one of the partners in the joint hospital at Alvaston. There is a small-pox hospital at Ravensmoor.”

NORTHWICH URBAN DISTRICT.—“This is one of the constituent authorities of the Joint Hospital Committee, having an isolation hospital at Davenham and a small-pox hospital at Marbury.”

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NESTON AND PARKGATE URBAN DISTRICT.—“The Wirral Joint Hospital Board supply the necessary isolation accommodation for infectious diseases.

“In conjunction with the Hospital Authority there has been formulated a scheme so that early notice is received of the admission of patients and the nature of the diseases from which they may be suffering. This obviates the risk of premises being left without disinfection for more than a few hours.

“The contributions to the common fund expenses of the Joint Hospital Board and the number of Neston patients treated in the hospital were as follows:—

1st April, 1911 to 31st March, 1912.	1st April, 1912, to 31st March, 1913.	1st April, 1913, to 31st March, 1914.
9 patients, £255/2/10	7 do., £221/0/4½	3 do., £194/13/7

RUNCORN URBAN DISTRICT.—“It has been the policy of the Health Committee during the latter half of the year to find accommodation in the isolation hospital for every case of infectious disease which has been recommended for removal.

“A number of repairs and alterations have been carried out at the hospital with the object, primarily, of increasing the accommodation for patients and also of making the service more efficient. The staff of the hospital has also been increased. Prior to August the Matron and a Ward Maid formed the permanent staff, the services of a night nurse were requisitioned as required and only when there were patients in the hospital. In consequence of this arrangement it was found that the Matron had been continuously on duty for ten weeks without a day's rest and on occasion had taken duty for two days and one night without break. The staff now consists of a Matron, Night Nurse, a Probationer and Ward Maid, who appear to be working satisfactorily. It should be pointed out that it is necessary that the Health Committee should seriously consider the question of increased accommodation for the staff in the house at the hospital; at present it is far from sufficient.

“It has been very fortunate that, during the autumn when a number of cases of scarlet fever particularly and of diphtheria, were removed to hospital, the age and sex of the cases permitted one of the two wards available to be used for scarlet fever and the other for diphtheria. It is my opinion that, in the cases of scarlet fever the early removal of cases, which the

home conditions would not permit of suitable isolation and treatment at home and the thorough disinfection of rooms in which scarlet fever cases had been housed and of the clothes of the patients, brought the outbreak in the autumn to a sudden termination. It is noteworthy that no 'return' cases apparently occurred. These are cases who have contracted the disease from a patient recently discharged from the isolation hospital. These 'return' cases are common in almost every town; their non-occurrence here speaks well for the care and precautions taken at the hospital.

"The arrangements previously made with the Runcorn Rural District Council as regards the small-pox hospital at Moore have been allowed to be continued during the year on the same terms as heretofore."

SALE URBAN DISTRICT.—"This is one of the constituent authorities forming the Bucklow Joint Hospital Board."

TARPORLEY URBAN DISTRICT.—"Infectious diseases may be sent to Chester Isolation Hospital, Sealand, near Chester—Tarpорley, Tarvin and Malpas constituting a Joint Hospital Board. Six cases were sent to hospital during 1914—five diphtheria and one scarlet fever."

WILMSLOW URBAN DISTRICT.—"By arrangement with the Manchester Corporation, the Bucklow Joint Hospital Board, on which the Wilmslow Urban District Council is represented, is provided with a sufficient number of beds at Monsall Hospital for cases of infectious disease (excluding tuberculosis). Eight cases of scarlet fever and one of puerperal fever were removed to hospital during the year. The Baguley Sanatorium has been converted into a sanatorium for tuberculosis by the Manchester Corporation. The Bucklow Joint Hospital Board has the use of ten beds in this institution."

WINSFORD URBAN DISTRICT.—"This is one of the constituent authorities of the Joint Hospital Committee, having an isolation hospital at Davenham and a small-pox hospital at Marbury."

YEARDSLEY-CUM-WHALEY URBAN DISTRICT.—"Infectious cases from this district are sent when necessity arises to the Hyde Isolation Hospital or to the Derbyshire Isolation Hospital at High Peak."

BUCKLOW RURAL DISTRICT.—"This is one of the constituent authorities of the Bucklow Joint Hospital Board."

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CHESTER RURAL DISTRICT.—“Cases are isolated by agreement in the Chester Isolation Hospital.”

CONGLETON RURAL DISTRICT.—“This is one of the constituent authorities owning a joint hospital at West Heath, near Congleton. There is a small-pox hospital at Arclid.”

DISLEY RURAL DISTRICT.—“The Hyde Corporation Isolation Hospital is available for cases of infectious disease and has met all requirements.”

MACCLESFIELD RURAL DISTRICT.—“The hospital accommodation available for infectious diseases consists of:—(1) a cottage at Greenway, Sutton, which provides two beds for small-pox and (2) fourteen beds for other infectious diseases at the Macclesfield Corporation Isolation Hospital on the Moss.

“As no cases of small-pox have occurred in the district the Greenway Hospital has remained unopened. The beds reserved at the Corporation Hospital have proved sufficient for all requirements, ten cases of diphtheria and thirty-two of scarlet fever having been treated there during the year.”

MALPAS RURAL DISTRICT.—“The Isolation Hospital, Sealand, Chester, is utilised by agreement. For small-pox, arrangements are made with Whitechurch Small-pox Hospital. The Conjoint Hospital Board for infectious disease consists of Tarporley, Tarvin and Malpas districts.”

NANTWICH RURAL DISTRICT.—“This district jointly with the Urban District has an isolation hospital at Alvaston and a small-pox hospital at Ravensmoor.”

NORTHWICH RURAL DISTRICT.—“This district is one of the constituent authorities of the Joint Hospital Committee, with an isolation hospital at Davenham and a small-pox hospital at Marbury.”

RUNCORN RURAL DISTRICT.—“The increased accommodation to 24 beds at the Isolation Hospital, Dutton, has been of great value and has resulted in a much larger number of admissions than formerly—thus, in 1913, 77 cases were removed to hospital and this was the largest number which had been admitted in any one year; but in 1914, the total number of admissions to hospital was 115, of which 44 were cases of diphtheria and membranous croup, 68 were cases of scarlet fever and three were cases of enteric, or typhoid fever. At several times the hospital was quite full and it is evident that there is not one bed too many for the requirements of the

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district. It is gratifying to report that out of this number of patients admitted, 115 in all, only three deaths occurred in hospital, one being from enteric fever and two from diphtheria.

“As evidence of the great value of the increased accommodation at the isolation hospital, I would point out that out of 63 cases of diphtheria which were notified, 44 cases were admitted to hospital, a percentage of 70; out of 73 cases of scarlet fever which were notified, 68 were admitted, or a percentage of 93; while all the three cases of typhoid fever which were notified were admitted, that is 100 per cent.—or, adding them all together, out of 139 cases of these three diseases notified 115 were removed to hospital, or a percentage of 82, compared with the 66 per cent. which were removed in 1913 and lower percentages in previous years.

“The small-pox hospital at Moore is kept ready for use with a Washington Lyon Steam Disinfector on the premises, independent of the other steam disinfector at the isolation hospital, Dutton.”

TARVIN RURAL DISTRICT.—“Cases requiring isolation are sent to the Chester Isolation Hospital by agreement.”

TINTWISTLE RURAL DISTRICT.—“There is a small-pox hospital at Mottram Moor jointly owned by this district and the Mottram and Hollingworth Urban Districts. Cases of other infectious diseases would be received in the Hyde Isolation Hospital if of an urgent nature.”

WIRRAL RURAL DISTRICT.—“From the Wirral Rural District 65 patients, including five from the Liverpool County Hospital for Children, Heswall and one from the Poor Law Institution, Clatterbridge, were treated in the Clatterbridge Isolation Hospital, in the financial year (1st April, 1913, to 31st March, 1914) and the contribution of this district to the Joint Hospital Board Funds was £1,338 8s. 4d.”

Bacteriological Examinations.

Through the courtesy of Professor Delépine I am able to give a complete and recent statement as to the arrangements made by various sanitary authorities in the Administrative County for the examination of specimens from doubtful cases of diphtheria, typhoid fever, tuberculosis, of samples of water, milk, various food, &c., &c., in connection with the investigation or prevention of outbreaks of disease.

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"With few exceptions the authorities enumerated in the list have made use of the Laboratory since 1900 (many had already begun in 1898, Crewe in 1897). Those belonging to the first group were at first connected with the Laboratory by a sort of contract which was based upon the payment of an annual minimum fee proportional to the population—but owing to the complication which this system entailed, I suggested in 1908 an annual subscription of 1s. per 1,000 inhabitants. Nearly all the authorities have accepted the second arrangement. Authorities which do not pay a subscription are not entitled to the benefit of a reduced scale of fees. The year in which each authority began to make use of the Laboratory is given in the list of Authorities."

The figures below the various lines indicate the number of specimens in which positive results were obtained.

PUBLIC HEALTH LABORATORY, UNIVERSITY OF MANCHESTER.

1. *Places in Cheshire (not including County Boroughs) definitely connected with the Laboratory (paying an Annual Subscription).*

1897. Alderley Edge U.D.	1899. Hyde M.B.
1899. Ashton-upon-Mersey U.D.	1898. Knutsford U.D.
1901. Bowdon U.D.	1902. Lymm U.D.
1901. Bredbury and Romiley U.D.	1898. Middlewich U.D.
1898. Bucklow R.D.	1903. Nantwich U.D.
1913. Buglawton U.D.	1898. " R.D.
1900. Cheadle and Gatley U.D.	1898. { Northwich U.D.
1898. Congleton M.B.	1898. { " R.D.
1909. " R.D.	1902. Runcorn R.D.
1897. Crewe M.B.	1902. Sale U.D.
1899. Dukinfield M.B.	1912. Sandbach
1900. Hale U.D.	1898. Wilmslow U.D.
1899. Hollingworth U.D.	1898. Winsford U.D.
1906. Hoole U.D.	

2. *Places which are not definitely connected, but which send occasional specimens for examination.*

1913. Alsager U.D.	1899. Marple U.D.
1898. Altrincham U.D.	1908. Mottram U.D.
1897. Bollington U.D.	1912. Runcorn U.D.
1913. Chester R.D.C.	1913. Tarvin U.D.
1913. Compstall U.D.	

Macclesfield has an arrangement for a similar purpose with the Lister Institute and Lower Bebington Urban District Council send occasional specimens to the Johnston Laboratories, Liverpool, for examination.

Under the arrangements before referred to with the Public Health Laboratory of the University of Manchester, 1,031 specimens of various kinds were examined during the year ended December 27th, 1914. The authorities sending specimens, the

BACTERIOLOGICAL EXAMINATIONS.

nature of such specimens and the results of examination are given in the accompanying statement.

Authority.	Diphtheria.	Typhoid.	Cerebro Spinal Fever.	Tuberculous Sputum.	Tuberculous Cows' Milk.	Water.	Various.	Total.
<i>County Council.</i>								
Cheshire, Health Committee ...	$\frac{3}{1}$	—	—	—	—	31	—	34
Cheshire, Insurance Committee ...	—	—	—	$\frac{16}{4}$	—	—	5	21
Cheshire, Constabulary ...	—	—	—	—	$\frac{24}{9}$	—	—	24
<i>Municipal Boroughs.</i>								
Crewe ...	$\frac{192}{254}$	$\frac{4}{1}$	—	$\frac{17}{3}$	—	—	5	218
Congleton ...	$\frac{12}{4}$	$\frac{3}{0}$	—	$\frac{124}{3}$	—	—	—	51
Hyle ...	$\frac{13}{1}$	$\frac{4}{3}$	—	$\frac{13}{5}$	$\frac{6}{0}$	—	—	32
Dukinfield ...	$\frac{1}{0}$	$\frac{4}{1}$	—	$\frac{124}{9}$	$\frac{12}{2}$	—	—	31
<i>Urban Districts.</i>								
Alderley Edge ...	$\frac{4}{2}$	$\frac{1}{0}$	—	$\frac{1}{1}$	—	—	—	6
Knutsford ...	$\frac{10}{4}$	$\frac{3}{1}$	—	—	—	—	—	13
Winsford ...	$\frac{31}{6}$	$\frac{5}{1}$	—	$\frac{13}{0}$	—	—	—	49
Northwich ...	$\frac{18}{1}$	$\frac{8}{2}$	—	$\frac{1}{0}$	—	2	—	31
Altrincham ...	$\frac{7}{1}$	$\frac{2}{0}$	—	—	—	—	1	10
Ashton-on-Mersey ...	$\frac{4}{4}$	$\frac{1}{1}$	—	$\frac{1}{1}$	—	—	1	7
Wilmslow ...	$\frac{4}{0}$	$\frac{3}{1}$	—	$\frac{2}{0}$	—	—	2	11
Marple ...	$\frac{3}{0}$	$\frac{1}{1}$	—	$\frac{4}{1}$	—	—	—	10
Cheadle and Gatley ...	$\frac{6}{0}$	$\frac{4}{1}$	—	$\frac{1}{0}$	—	—	—	11
Hale ...	$\frac{8}{3}$	$\frac{2}{0}$	—	$\frac{10}{2}$	—	—	—	20
Bredbury and Romiley ...	$\frac{1}{0}$	$\frac{4}{3}$	—	$\frac{9}{3}$	—	—	—	14
Bowdon ...	—	$\frac{2}{0}$	—	$\frac{1}{0}$	—	—	—	3
Lymm ...	$\frac{27}{11}$	—	—	—	—	—	—	27
Sale ...	$\frac{12}{7}$	$\frac{1}{0}$	—	$\frac{9}{0}$	—	—	—	22
Nantwich ...	$\frac{17}{4}$	—	—	$\frac{7}{3}$	—	—	1	25
Hollingworth ...	—	$\frac{2}{1}$	—	$\frac{1}{0}$	—	—	—	3
Middlewich ...	$\frac{9}{3}$	$\frac{2}{0}$	—	$\frac{7}{2}$	—	—	—	18
Sandbach ...	$\frac{11}{1}$	$\frac{1}{1}$	—	$\frac{12}{2}$	—	—	—	24
Hoole ...	$\frac{12}{4}$	$\frac{1}{0}$	—	$\frac{20}{2}$	—	—	—	19
Buglawton ...	$\frac{6}{0}$	—	—	$\frac{5}{2}$	—	—	—	11
<i>Rural Districts.</i>								
Bucklow ...	$\frac{4}{0}$	$\frac{3}{0}$	—	$\frac{5}{1}$	—	—	—	12
Nantwich ...	$\frac{28}{3}$	—	—	$\frac{6}{1}$	—	1	3	38
Runcorn ...	$\frac{2}{1}$	$\frac{2}{0}$	—	$\frac{3}{0}$	—	—	—	10
Northwich ...	$\frac{20}{5}$	$\frac{3}{0}$	—	$\frac{4}{0}$	—	28	—	55
Congleton ..	$\frac{10}{0}$	$\frac{1}{0}$	—	$\frac{23}{3}$	$\frac{1}{0}$	—	—	35
<i>Water Companies.</i>								
Ashton-under-Lyne, Stalybridge and Dukinfield Waterworks ...	—	—	—	—	—	126	—	126
<i>Hospitals.</i>								
Northwich, Joint Isolation Hospital	$\frac{1}{0}$	—	—	—	—	—	—	1
<i>Various.</i>								
Cheadle Royal Asylum ...	$\frac{3}{0}$	—	—	—	—	—	—	3
Soss Moss Epileptic Schools, Chelford	$\frac{1}{0}$	—	—	—	—	—	—	1
Crossley Sanatorium, Frodsham ...	—	—	—	—	—	—	1	1
Sale County High School for Girls ...	—	—	—	—	—	4	—	4
Total	$\frac{458}{89}$	$\frac{70}{17}$	$\frac{2}{0}$	$\frac{227}{51}$	$\frac{33}{11}$	192	19	1031

BACTERIOLOGICAL EXAMINATIONS.

The following are the comments of the District Medical Officers of Health on this matter :—

LOWER BEBINGTON URBAN DISTRICT.—“ The Council now subscribe to the Clinical Research Association and have arranged to pay the fees for bacteriological examinations where the patients themselves are unable to do so. The bacteriological work is classified in the following statement :—

	Total.	Positive	Negative.
Swabs examined for diphtheria	36	15	21
Enteric fever ...	4	—	4
Expectoration for tubercle ...	4	2	2
	—	—	—
	44	17	27

BOLLINGTON URBAN DISTRICT.—“ Material, such as throat swabs, sputum, &c., from 17 cases has been sent to the Lister Institute and from 11 cases to the Runcorn Laboratories for bacteriological examination. The fees for the same amounted to £2 13s. 6d. to the Institute and £1 2s. 6d. to the Runcorn Laboratories.”

BREDBURY AND ROMILEY URBAN DISTRICT.—“ The following table shows the bacteriological examinations made for this Council during the year 1914, by Prof. Delépine, at the Victoria University, Manchester :—

Diphtheria.		Typhoid.		Tuberculosis.	
Total.	Positive.	Total.	Positive.	Total.	Positive.
1	0	4	3	9	3

CHEADLE AND GATLEY URBAN DISTRICT.—“ Arrangements have been made with Professor Delépine, of the Public Health Department of the Victoria University, for material cases or suspected cases of enteric fever and diphtheria to be examined bacteriologically. This means of diagnosis was not so much used as in previous years. Sputum from cases of suspected tuberculosis can now also be sent for bacteriological examination. The number of specimens sent during the year was 10, as compared with 13 in 1913 and nine in 1912. Of these 10 cases six were from cases of suspected diphtheria, three from cases of suspected enteric fever and one from suspected tuberculosis. The results of the examinations were as follows :—

		Positive.	Negative.
Diphtheria	...	0	6
Enteric Fever	...	0	3
Tuberculosis	...	0	1

BACTERIOLOGICAL EXAMINATIONS.

COMPSTALL URBAN DISTRICT.—“There were no chemical or bacteriological examinations during the year. The Council have made arrangements with the Bacteriological Laboratory, Manchester, so that specimens may be sent for examination ”

ELLESMERE PORT AND WHITBY URBAN DISTRICT.—“A large amount of work in connection with the diagnosis of infectious diseases was performed by the Clinical Research Association on behalf of the Council.

SPECIMENS EXAMINED.

		Positive.	Negative.	Total.
Diphtheria	...	4	14	18
Enteric	...	—	2	2
Tuberculosis	...	1	23	24
Total	...	5	39	44

HALE URBAN DISTRICT.—“As in previous years, by arrangement with the Public Health Laboratory, Manchester University, ‘throat swabs’ for examination of those suspected of diphtheria have been provided and also ‘typhoid outfits’ for those suspected of typhoid fever. The cost of these examinations has been borne by the Council. During the year eight swabs have been submitted, three of which have been positive and five negative. Two typhoid outfits were utilized, neither of which has given a positive result. The Council authorises the distribution of diphtheria antitoxin to such as cannot be reasonably supposed to bear the cost of the same.”

HOYLAKES AND WEST KIRBY URBAN DISTRICT.—*Bacteriological Work.*—“Bacteriological examinations were made by the Clinical Research Association on seven occasions, with the following results :—

	Negative.	Positive.	Totals.
Diphtheria	1	0	1
Enteric Fever	2	0	2
Tuberculosis	3	1	4
Totals	6	1	7

NORTHWICH URBAN DISTRICT.—“Antitoxin is supplied gratis on application by a medical practitioner and during the year 76,000 units have been provided by the authority. Arrangements are

BACTERIOLOGICAL EXAMINATIONS—MIDWIVES.

in force for the pathological examination of morbid products from suspected cases of diphtheria, typhoid fever and phthisis by Professor Delépine at the Public Health Laboratory and in this way eighteen swabs from throats suspected of diphtheria have been examined with one positive and seventeen negative results; eight samples of blood from cases of suspected typhoid fever with two positive and six negative results. One specimen of sputum proved non-productive of the tubercle bacillus."

WILMSLOW URBAN DISTRICT.—"The Council has arranged for the examination of pathological specimens at the Manchester Public Health Laboratory as an aid to the diagnosis of diphtheria, enteric fever and pulmonary tuberculosis. During 1914 there were examined four throat swabs for diphtheria with negative results in all, three blood tubes for enteric with a positive result in one case, a carrier and two specimens of sputum for pulmonary tuberculosis with negative results. Antitoxin is provided for use in the treatment of diphtheria."

DISLEY RURAL DISTRICT.—"I have on several occasions asked you to provide bacteriological aids to diagnosis of certain infectious diseases, as well as antitoxin for cases of diphtheria. I again take this opportunity to ask you to grant these facilities."

NORTHWICH RURAL DISTRICT.—"The following pathological examinations were made at the Public Health Laboratory at Manchester—20 swabs from throats suspected of diphtheria, of which four were positive and sixteen negative; three specimens of blood from cases suspected of typhoid fever—all negative; six samples of sputum from persons suspected of tuberculosis—all negative. Ninety-six thousand units of antitoxin were supplied by the Authority. The pathological examination and the supply of antitoxin are provided free of cost by the Sanitary Authority to any doctor asking for them, while reserving the right to refuse it for persons considered able to pay for their own; this has never yet been questioned."

Section VII.—Midwives Act, 1902.

At the close of the year 1913, there were 416 midwives on the County Register. During 1914 there were 63 names taken off the Register. Deaths, removals and retirement, accounted for the remainder. Thirty names were added, this bringing the net total to 390 now on the County Register.

Of those midwives whose names have been removed from the Register, 15 were women who were in *bonâ fide* practice in July, 1901 and 26 were women who had undergone the prescribed training.

Of midwives whose names have been added to the Register, 35 are women who have undergone the prescribed training and two are women who were in *bonâ fide* practice in July, 1901.

The number of properly trained midwives practising in the Administrative County is now 164, as compared with 155 for 1914, 181 for 1913, 183 for 1912, 180 for 1911, 156 for 1910 and 120 for 1909.

The number of midwives who have been trained and certified at a Training School approved by the Central Midwives Board is 42.0 per cent. of the total number on the County Register, as compared with 37.25 for 1914, 39.7 per cent. in 1913; 37.57 per cent. in 1912; 35.08 per cent. in 1911; 31 per cent. in 1910; 25.64 per cent. in 1909; 23.67 per cent. in 1908; and 21 per cent. in 1907.

There have been over 150 changes of address, name, &c, notified during the year.

There are a number of registered midwives in the County who only act as monthly nurses and whose names consequently do not appear on the County Register. The names also of a number of nurses in infirmaries who occasionally take maternity cases, or are attached to maternity wards, are not included in this Register.

In the following districts there are no midwives practising—Bowdon Urban, Handforth Urban and Tarporley Urban.

The following particulars are summarised from the special Reports of the Medical Officers of Health :—

(a) Cases attended by Midwives.

The total number of cases attended by midwives in the Administrative County during 1914 was 9201, a slight decrease on the figure for 1913. The total number of births registered in the Administrative County was 13,019. It thus appears that midwives attended approximately 70 per cent. of the total births in the County. In 1913 it was 69 per cent., in 1912, 1911 and 1910 it was 66.6 per cent., and in 1909, 59 per cent.

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(b) Keeping of Case Books, &c.

In all districts practically the whole of the midwives keep case books or registers, but a very few illiterate women who cannot either read or write naturally do not concern themselves with such records. In some cases of illiteracy the midwives keep case books and registers, but rely upon the assistance of relatives and friends to keep them entered up. In one or two instances it is stated that case books are not kept or are not entered up to date.

(c) Records of sending for Medical Help.

It appears that in 903 cases medical help was summoned by the midwife. Taking the total number of cases attended by midwives as 9201, this gives the percentage of cases in which they deemed it advisable to summon medical help as about 10%, a somewhat low figure.

As instancing the variations in this matter in the different districts, two extreme cases may be cited.

In Hyde there were 646 cases attended by midwives and 123 records of sending for medical help ; whereas in Northwich Urban District out of 441 cases there were only 12 such records.

(d) Taking of Pulse and Temperature.

The remarks under this heading are similar in character to those published in my previous annual reports and are to the effect that only a small proportion of the untrained women can take the pulse and temperature in such a manner that the record can be relied upon.

(e) Appliances.

It may be stated generally that most of the illiterate midwives either do not possess or cannot reliably use catheters or vaginal douches and the Medical Officers generally hold that this type of woman is better without such appliances. The large majority of the replies to the enquiry as to whether the appliances required by the rules to be kept by each midwife are actually provided and kept clean and in good order, are in the affirmative.

(f) Means of Disinfection.

The facilities afforded in the various districts for the disinfection of midwives who have been attending cases of puerperal fever or other infectious disease, or cases in which there are foul

smelling discharges, vary very considerably. For these, therefore, as well as for other purposes, it is very desirable that districts at present unprovided with means of disinfecting the clothing of the midwives practising in their areas should make arrangements to this end as early as possible. The following districts have no such provision, viz., Alsager, Ashton-upon-Mersey, Bollington, Compstall, Hale, Knutsford, Lymm, Middlewich, Mottram, Nantwich, Sale, Winsford, Yeardsley, Bucklow Rural, Congleton Rural, Disley Rural, Macclesfield Rural and Tintwistle Rural.

(g) Puerperal Fever.

In 17 cases throughout the whole of the Administrative County cases of puerperal fever are known to have arisen in cases attended by registered midwives. The Medical Officers of Health have uniformly carried out the most rigorous measures on the occurrence of such disease in the practice of a midwife.

(h) Penal Procedure.

Three cases of breach of the rules of the Central Midwives Board were reported to that Board by your Committee and in consequence thereof the women were cautioned as to their future conduct. Three cases of practice by unqualified women were reported. One woman was severely cautioned and the other two taken before the magistrates. There was no conviction in either case, but the proceedings doubtless had a good effect as a warning to all women who are guilty of illegal practice.

(i) Shortage of Supply.

This is said to be the case in the following districts:—Nantwich Urban, Tarporley Urban, Chester Rural, Congleton Rural, Macclesfield Rural and Wirral Rural.

There is no doubt some improvement in the general proficiency of the midwives in this county. Many of the District Medical Officers of Health have gone to considerable trouble to instruct the old "bonâ-fide" women in the taking of the pulse and the reading of the thermometer. The illiterate woman with no knowledge of the real meaning of the word *æpsis* is fast disappearing and the trained midwife is taking her place. A few, but only a few, of the trained women are apt to think they are qualified to deal with any emergency or complication and do not scruple to offer advice on medical matters quite outside their province. However, this comes to light sooner or later and is easily corrected.

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The shortage of midwives in a few areas is even a more serious matter than previously. The County Council have for some years generously made a grant of £250 per annum to enable women to be trained through the County Nursing Association—the women when trained taking up work as district nurses and acting in addition as midwives.

There are a few matters of importance in the last Report of the Central Midwives Board which I feel sure will interest your Committee, dealing as they do with difficulties which have often arisen in this County.

One is glad to see that the Central Midwives Board is appreciative of the difficulties attending the work of Local Supervising Authorities. The difficulty alluded to in the following quotation from the last Annual Report of that body is one fairly frequently experienced here. There are five things which a Local Supervising Authority has to prove when undertaking a prosecution under Section 2 of the Midwives Act, 1902, if success is to be attained:—

- (a) That the defendant is not certified under the Act: this is easily done under Section 7 by the production of the County Midwives Board Roll and Supplementary Roll:
- (b) That she has *habitually* attended women in child-birth: this is a hard thing to prove for it requires evidence of attendance under improper conditions in a number of cases and within a recent period:
- (c) That she has attended such women for gain: here evidence by the defence of the small amount paid and of the fact that other services may have been rendered at the same time (washing clothes, cooking, helping in the house, looking after the other children, &c., &c.), all tend to weaken the case for the prosecution:
- (d) That she attended such women otherwise than under the direction of a qualified medical practitioner: here, though I much regret to say it, there is at times some 'covering' of unqualified women done: a doctor is quite often engaged with the deliberate intention that he shall not be called in unless 'something goes wrong' (an arrangement which could easily, I think, be quashed by any doctor so 'engaged' asking for a portion of the fee to be paid on engagement): and
- (e) That the attendance was not the 'rendering of assistance in a case of emergency': this affords an easy loophole for conspiracy.

Whilst one does not desire to place any obstacle in the way of parturient women obtaining such assistance as may be available in the absence of trained help one cannot help observing that Section 1 (2) of the Midwives Act is, as it stands at present, far too elastic in its wording and I think the experience of the past 13 years is enough to shew those who have had to directly administer it that it now needs strengthening.

On the point of 'habitually' practising as a midwife the Central Midwives Board remark:—

"The old type of untrained midwife who was certified under Section 2 of the Midwives Act is now, as might be expected, disappearing with increased rapidity though she is still a well known feature in most country districts. Complaints of a shortage of midwives seldom reach the Board, but there can be no doubt that practice by uncertified women in defiance of Section 1 of the Midwives Act flourishes in some parts of the country where the Local Supervising Authority is less vigorous in administering the Act than is desirable. The difficulties in the way of securing the conviction of an offender owing to the necessity of proving the practice to be 'habitual and for gain' make the Local Supervising Authorities unwilling to act in many cases, and the desire of the patient to assist the defendant frequently leads to a successful defence being established on a plea of emergency which it is difficult to believe can ever have really existed. Complaints on this matter and suggestions as to amending Section 1 (2) by the omission of the words 'habitually and for gain' have been received from Local Supervising Authorities, and from certified midwives whose practice suffers from the competition of the uncertified woman."

The remarks of the District Medical Officers of Health on this subject are appended:—

DUKINFIELD MUNICIPAL BOROUGH.—"There is no shortage of midwives in any part of the town; one midwife has attended over a hundred cases, four over fifty cases. The average per midwife is 37. The work of the midwives is, in my opinion, carried out in a very satisfactory manner. Surgical cleanliness in every detail is strictly observed. Three cases of puerperal fever have been reported with one death, all three occurring in the practice of different midwives, but from enquiries made these cases were not due to any carelessness on the part of the midwife but to other causes. It is to be regretted that there are several old and illiterate midwives

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who find it impossible to take and record the temperature and pulse. These in time will drop out, but in the meantime their work is being well done."

HYDE MUNICIPAL BOROUGH.—"There have been twenty-four names of midwives practising in the Borough on the register during 1914. According to the midwives' case books 646 cases have been attended by them during the year. In 123 cases medical help was received and 27 still-births were notified. Two cases of puerperal fever were notified, occurring in the practices of different midwives. The midwives were directed to cease practising and were sent to the hospital, with clothes, bag and appliances and were there disinfected. This routine has been followed since the Midwives Act came in force and no case has been found after disinfection which could be traced to a previously notified case."

ALSAGER URBAN DISTRICT.—"The number of midwives is three. Registers are regularly and well kept. One cannot write; her register is kept by her daughter. She nurses for medical men only. She can take temperature, but is under medical supervision, she is thoroughly reliable and a very clean and respectable woman. No laying out is sanctioned by the Local Authority without the consent of the Medical Officer of Health. Neither has been reported to the Supervising Authority. No case of puerperal fever or other infectious or contagious disease has arisen in cases attended by the midwives. I have inspected their bags and found them very satisfactory. Their houses are kept scrupulously clean. There are no better midwives in Cheshire."

LOWER BEBINGTON URBAN DISTRICT.—"There are five midwives whose names are on the County Register practising in your district. Each is visited at least once in every quarter. They all carry out the rules of the Central Midwives Board. They attended 240 births in 1914 and notified eleven still-births, two deaths of mothers and seven instances of having laid out a dead body. One fatal case of puerperal fever occurred. In every instance their homes are clean, sanitary and well looked after. When visiting their patients they wear clean, washable dresses and use strict anti-septic and aseptic precautions in connection with all their appliances."

Section VIII.—Water Supply.

The Reports of Medical Officers and Surveyors, extracts from which I submit herewith give a fairly complete statement of the existing water supplies in the Administrative County. It will be seen from these that Cheshire is in a fortunate position in this respect. This is due to the fact that, geologically and physically speaking, Cheshire is well situated. The triassic rocks (new red sandstone) are excellent water-yielding strata and they virtually extend over the whole of the Cheshire plains. The water from this formation is usually bright, colourless, wholesome and palatable, though apt to be hard owing to the presence of the sulphate and carbonate of calcium. In the east of the County running up from Congleton to Stockport and Hyde the geological formation is millstone grit, coal measures and a little mountain limestone: from millstone grit and mountain limestone only little water is available by reason of the impermeability of the strata and what little is obtainable is got from springs and varies a good deal in character. Surface supplies are available however and if the dangers of lead-poisoning and discolouration due to peat are sufficiently guarded against, these are usually excellent for domestic and manufacturing purposes.

In certain districts, or portions of districts, there is an inadequate supply.

In Tarporley Urban District certain houses in Utkinton are not satisfactorily supplied, the inhabitants having to carry spring water some 300 yards. The supply of the cottages in Rushton, previously mentioned in this Report, is in hand.

The Winsford Urban District Council is endeavouring to obtain an additional supply for their district.

Some progress is being made with the provision of a public supply to Mobberley (Bucklow Rural District) and the question of a piped supply to Carrington village is under consideration.

Dunham Hill (Chester Rural District) has now been supplied with water from the Helsby works of the Runcorn Rural District Council, but Ince and Mickle Trafford parishes are not furnished with an adequate water supply.

WATER SUPPLY.

In Congleton Rural District the townships of Mow Cop, Mount Pleasant, Smallwood (particularly Martin's Moss), Astbury, Hassall Green and Cranage are not adequately supplied with water.

In Disley Rural District the part known as Higher Disley is shortly to be supplied with water from public sources.

The supply of water to Audlem and a number of contiguous townships is still under consideration—tenders for the work having been accepted. A similar remark applies to the parish of Ridley.

In the Northwich Rural District the supply to Byley, Whatcroft and Rudheath has been arranged. Barton is still not quite satisfactorily supplied. The question of the supply to Allostock, Nether Peover and Lach Dennis may be settled by a supply being obtained from the Northwich Urban District Council mains, but an alternative scheme is under consideration. In the case of Crowton the matter is still being considered.

In Runcorn Rural District there are 14 townships supplied from public or private wells, etc. (see comments of District Medical Officer of Health).

The Tarvin Rural District Council it is understood are still considering the question of a public water supply to Farndon, Burwardsley, Broxton, Tilston and Harthill.

The comments of the Medical Officers of Health for the several districts are appended:—

CONGLETON MUNICIPAL BOROUGH.—“The water supply was sufficient and of good quality throughout the year. Thirteen samples were analysed and found to be pure. The whole district is supplied except a few thinly populated, outlying districts and inaccessible places. The 3-inch main was extended in Townsend Road 93 yards and in Bromley Lane the 4-inch main was extended 163 yards.”

DUKINFIELD MUNICIPAL BOROUGH.—“The domestic water in Dukinfield is excellent in quality and abundant in quantity. During the dry summer of 1911 there was no shortage. Dukinfield is joint owner of the waterworks in the Swineshaw and Chew Valleys, together with the Boroughs of Ashton-under-Lyne, Stalybridge and Mossley. The present capacity of the

reservoirs owned by the Joint Waterworks Committee is about 900 million gallons and when the new reservoir in the Chew Valley is completed it is estimated that the capacity will be increased by 200 million gallons. The water, at present, comes from the wells, springs and streams in the Swineshaw Valley and is free from any risk of pollution. The water is soft, but since the year 1912 the whole of the domestic supply of water for this district has been filtered and treated. The method of treatment is carried out on the most modern scientific principles. Two filter houses have been opened at Swineshaw and Chew Valley respectively."

HYDE MUNICIPAL BOROUGH.—"The water supply is obtained from the reservoirs of the Manchester Corporation, situated at Woodhead. The supply for trade purposes is obtained from the reservoirs belonging to the Corporation, situated at Gee Cross."

STALYBRIDGE MUNICIPAL BOROUGH.—"Along with the neighbouring Boroughs of Ashton-under-Lyne, Dukinfield and Mossley, Stalybridge is supplied with an abundance of pure water from extensive reservoirs which have a holding capacity of close upon 900,000,000 gallons and a large reservoir in the Chew Valley, for water for compensation purposes, has recently been constructed. This new reservoir has a capacity of about 200,000,000 gallons. Its gathering ground is 1,730 acres in extent and has an elevation of 1,750 feet. The supply to Stalybridge is almost wholly derived from the Brushes Reservoir, but portions of the borough, namely, Heyrod, Hough Hill and the district of Mottram Road above Bower Fold, are supplied from the Lower Swineshaw Reservoir, which also supplies the adjacent Borough of Mossley. The gathering ground at Swineshaw is 1,300 acres in extent and has an elevation of 884 feet. The Higher Swineshaw Reservoir has a depth of 53 feet and a capacity of 168,908,000 gallons and it supplies both the Lower Swineshaw Reservoir and the Brushes Reservoir. On September 19th, 1912, the filter installations at the Brushes Reservoir and at Ashway Gap were opened, so that the whole of the water distributed from the Swineshaw and Greenfield Valleys is now freed from suspended matter and also has its acidity neutralised so as to render it incapable of absorbing lead and insidiously causing lead poisoning. During the past year no case of lead poisoning, attributable to the town's water supply, has been brought to my notice."

ALSAGER URBAN DISTRICT.—"The water supply is from the same source as before and has been found satisfactory.

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A sample taken from Well No. 2 and sent for analysis to the County Analyst was reported 'A water of exceptionally high degree of purity though excessively hard.' Since my last report the pumping station and reservoir have been erected, engines and pumps have been fixed, the pipe track has been laid and the testing will be commenced immediately."

ALTRINCHAM URBAN DISTRICT.—"The water supply is derived from Manchester through the agency of the North Cheshire Water Company and is continuous, abundant and good."

ASHTON-UPON-MERSEY URBAN DISTRICT.—"The water is supplied by the North Cheshire Water Co., which gets its water from the Corporation of Manchester, chiefly from Woodhead; but in cases of emergency the supply comes also from Thirlmere. It is sufficient in quantity and good in quality."

HIGHER BEBINGTON URBAN DISTRICT.—"The district has a constant supply of water provided by the West Cheshire Water Company. The hardness of this water, which is derived from wells in the new red sandstone, has been a cause of complaint amongst the consumers for many years. As the result of the West Cheshire Water Company being compelled to soften the water from the Hooton well before distribution, it was anticipated that a softer supply would be provided, but the state of the water is the cause of much dissatisfaction. The water supply is not the softened water from Hooton and is probably a mixture of Hooton and Prenton well waters. It seems that it is within the legal right of the Company to supply whichever water they please and the Act only compels them to soften the Hooton product."

LOWER BEBINGTON URBAN DISTRICT.—"A private Company—The West Cheshire Water Company—supplies water to the district. The supply is a constant one derived from wells in the new red sandstone. Samples of the water distributed have been submitted for analysis, more especially with regard to the question of hardness, about which there have been complaints. It will be within the recollection of everyone that the West Cheshire Water Company is under an obligation to soften the water from the Hooton well and an explanation of the persistent statements that the water has not been softened may be found in the circumstance that the water delivered is from the Prenton and not from the Hooton well.

"Samples analysed in November of this year gave the following results:—

(1) Taken from Bebington Show Grounds.

“Water of a high degree of organic purity.”

Hardness, Clarke's scale:—

Before boiling, 14.5.

After boiling, 2.0.

(2) Sample from Home Farm Yard, Lower Bebington.

“Water of a very high degree of organic purity; contains no saline constituents contributing to permanent hardness.”

Hardness, Clarke's scale:—

Before boiling, 12.0.

After boiling, nil.”

BOLLINGTON URBAN DISTRICT.—“The source of the water supply to the district remains the same as in previous years. It comes from the two boreholes at Lowerhouse and Dane Bent in the adjoining parish of Rainow. The altitude at Lowerhouse is 794 feet and the depth of the borehole is 210 feet, whilst at Dane Bent the altitude is 750 feet and the depth of the borehole is 426 feet. The new pump, mentioned in last year's report as being about to be installed, has been completed. Most satisfactory results have been obtained by its working. The old difficulty in securing a regular supply to the higher districts has been done away with, the service of water to the houses situated there being in steadiness and force of flow quite as good as in the lower lying parts of the village. The supply of water has thus been ample for the whole district, for only a few houses situated at too isolated spots are not now connected with the system. The question of expenses it would be necessary to incur in taking the pipes to these houses is the main reason for their remaining out and they are thus still dependent on springs for their water. Samples of water taken from Dane Bent borehole, Lowerhouse borehole and spring were submitted for analysis to Mr. S. E. Melling in March last, whose report is satisfactory.”

BOWDON URBAN DISTRICT.—“The supply of water to the Bowdon district is chiefly from the North Cheshire Water Co. and is excellent both in quantity and quality; there are three farm houses and five cottages supplied from wells; the supply is pure and plentiful.”

BREDBURY AND ROMILEY URBAN DISTRICT.—“Most of the district is supplied with water from the Woodhead reservoirs of the Manchester Corporation. This is a very good water and

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is not of a plumbo solvent nature. In some parts of the district complaints have been made with regard to its yellow colour. This is due to a fine peat fibre which readily settles out and which is easily removed by simple filtration. It is more noticeable after the mains have been flushed. It is not injurious to health. The other parts of the district are supplied by water from the new Kinder Waterworks, at Hayfield, through the Stockport Corporation. This is a very good water, clear and non-plumbo solvent. It has a good force and will reach the higher parts, which could not be supplied by the Woodhead water."

BROMBOROUGH URBAN DISTRICT.—"There is a constant supply of water from wells at Hooton, in the new red sandstone, owned by the West Cheshire Water Company.

"Bromborough Pool Village is supplied from a deep well in the new red sandstone at Price's Patent Candle Works. Samples of water were analysed during the year with the following results:—

(1) Taken from Price's Candle Works.

"A very hard water, but of a high degree of organic purity."

Hardness Clarke's Scale:—

Before boiling, 21.0; after boiling, 7.0.

(2) From Bromborough Schools.

"Water of an exceptionally high degree of organic purity, contains free carbonate of soda."

Hardness Clarke's Scale:—

Before boiling, 12.25; after boiling, nil.

(3) From the Mersey Chemical Works, Bromborough.

"Water of an exceptionally high degree of organic purity, contains free carbonate of soda."

Hardness Clarke's Scale:—

Before boiling, 11.0; after boiling, nil.

(4) From Manor Farm, Bromborough.

"Water of an exceptionally high degree of organic purity, contains free carbonate of soda."

Hardness Clarke's Scale:—

Before boiling, 11.2; after boiling, nil.

(5) From "Heathfield," Bromborough.

The "total hardness" of the sample is 8.5. The "free alkalinity," in terms of carbonate of soda, amounts to 7.95 grains per gallon."

CHEADLE AND GATLEY URBAN DISTRICT.—“The water of the district is supplied by the Stockport Corporation and is sufficient for the needs of the district. There was no curtailment of the supply during the year nor were there any complaints as to the purity of the water. Six houses have been provided with town's water, one well has been closed. One sample of well water was taken for the purpose of analysis. The Analyst reported it as fit for domestic purposes although it is very hard. Your Council took no steps in the matter.”

COMPSTALL URBAN DISTRICT.—“The water supply is abundant, constant and of good drinking qualities. It is obtained from springs on the upland and conveyed to two reservoirs, from whence it is carried by mains to the houses. The reservoirs are cleaned out and limed every year and the mains are flushed periodically. Provision has been made to divert the water before it reaches the reservoirs in times of flood. The water is free from lead and has no plumbo-solvent action. There is very little possibility of contamination. Some of the houses in the urban portion and the houses in the rural portion are supplied from springs and wells. These are well protected and free from contamination. The question of erection of tents on the upland ought to receive your attention owing to the liability of wells and springs becoming contaminated by persons using the said tents.”

ELLESMERE PORT AND WHITBY URBAN DISTRICT.—“The West Cheshire Water Company provides a constant supply of water which is derived from deep wells in the new red sandstone. The hardness of this water was a frequent cause of complaint among the ratepayers and the West Cheshire Water Bill was opposed in consequence. As a result the Company were compelled to undertake works for the softening of the water before its delivery to the consumer. These works have now been completed and are in operation. A large water tower has been constructed in Whitby and it was hoped that a much more generous supply would be obtained on its completion, but so far as can be judged from housing inspections, this anticipation has not been realised, for some of the flush cisterns to the w.c.'s remain empty all day through. The water mains are probably inadequate for the number of houses which draw their supplies from them. The Council have appointed a Water Engineer to prepare a report upon the water supply to their district and it is anticipated that this will be available early in the new year. The West Cheshire Water Company last year increased their rentals for

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baths, in consequence of which a large number were disconnected. When approached on this subject they replied that the charges made for baths were in accordance with their scale authorised by their Act of Parliament. The total number of houses at 31st December, 1914, was 2,342 and in these, with nine exceptions, the piped water was in use."

HALE URBAN DISTRICT.—"The water supply to practically the whole of the district is supplied by the North Cheshire Water Company from the Manchester Corporation Reservoirs at Woodhead and is satisfactory. There are only four springs in the district from which drinking water is obtained. During the year no new supplies have been laid on. At six houses in which the supply (town's water) was insufficient, pipes have been relaid and an ample supply of water is now obtainable."

HANDFORTH URBAN DISTRICT.—"Water is laid on to nearly all the houses from the Stockport Corporation Waterworks. The rainfall in 1914 was 37.8 inches."

HAZEL GROVE AND BRAMHALL URBAN DISTRICT.—"The water supply to the district is particularly good and comes from the reservoirs on the hills at Lyme; it is a very pure water and good for all purposes."

HOLLINGWORTH URBAN DISTRICT.—"Hollingworth has a very satisfactory water supply in a spring rising high up the Arnfield Clough and nearly all the houses in the main street and streets off it are supplied from this source, connected by short service pipes, which are well tinned and no trace of lead has ever been detected in the water. Analysis has repeatedly shown the water to be of exceptional purity. In parts not supplied with the public service nearly every dwelling is in possession of a satisfactory private supply of drinking water."

HOOLE URBAN DISTRICT.—"There is an ample supply of good water, the whole of the district being supplied by the Chester Waterworks Company."

HOYLAKE AND WEST KIRBY URBAN DISTRICT.—"The entire district is well supplied with water by the Hoylake and West Kirby Gas and Water Co., Ltd. The source of supply is deep wells in the new red sandstone at Grange Hill and Newton. The analyst to the Company reports that an examination of a sample of the water in July, 1914, had the following result :—

Expressed in Parts per 100,000.

	Town Mains.
Total Solid Matter in Solution... ..	34.8
Oxygen required to Oxidize in 15 minutes	None
" " " 3 hours	None
Ammonia	None
Ammonia from Organic Matter by distillation with Alkaline Permanganate	None
Nitrogen as Nitrates	0.37
Nitrogen as Nitrites	None
Combined Chlorine	6.6

Expressed in Degrees.

Temporary Hardness	6.4
Permanent Hardness	6.0
Total Hardness	12.4

“Grange Hill and Newton Supply and from Town Mains.—
The water was clear, bright, colourless, odourless and contained no organisms or pathogenic germs. It was free from lead and copper and from solid matter in suspension. The results of the analysis indicate that the extremely high state of organic purity remains unaltered.”

KNUTSFORD URBAN DISTRICT.—“The water supply has been the subject of much special inspection and report for many years. The position is summed up on p. 119 of A.R., 1908. The supply being in the hands of a private company, it is difficult to give recent and accurate information. The Council regularly notifies the Water Company of any pollution of the stream noticed and the latter body undertakes the systematic inspection which is so necessary. The stream traverses the districts of three other Authorities before entering Knutsford and, in fact, it never is ‘in’ this district, as it forms the township boundary on one side.”

LYMM URBAN DISTRICT.—“The water supply is now owned and controlled by the local authority and is laid on throughout the district where possible, that is with the exception of a few outlying farms and cottages. The supply, derived from artesian borings, is pumped up to a water tower for delivery under pressure. The supply is constant and there was no shortage even during the most trying summer of 1911. Analysis has given the result of a good, potable water. Though hard, on analysis it is pure and gives rise to no definite ailment that I can find; indeed, the absence of rickets in the district may, I think, be in great part due to the lime content of the water.”

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MARPLE URBAN DISTRICT.—“The water supply of Marple is obtained from the Stockport Corporation and comes from their Kinder and Lyme reservoirs. The water is pure and good and free from contamination.”

MIDDLEWICH URBAN DISTRICT.—“There is a good and plentiful supply of excellent water to nearly every house in the district, only three houses, situate a long way from mains, are not supplied with water from the town's supply.”

MOTTRAM URBAN DISTRICT.—“The water for the district is supplied by the Arnfield Springs. During the last three months there was a considerable amount of peat in the water.”

NANTWICH URBAN DISTRICT.—“Pumping from the Baddiley Mere had again to be resorted to for over 14 weeks, viz. :—from the 26th August to the 3rd December. There has been no improvement with regard to the pressure, in fact slightly the reverse, as the present works are affected by every fresh service, or consumer added.

“Extraordinary difficulty was met with in the sinking of the new well at Madeley, owing to the treacherous strata through which it was constructed and at the depth of 100 feet it was eventually discovered that the cast iron cylinders had become badly damaged. Steps were taken by the engineers to ascertain to what extent and it was finally decided to advise the Council to sink two large bore-holes commencing at the damaged portion of the well, about 50 feet deep, to be provided with special pumps for raising the water. The yield of the well was severely tested and was found to be over 120,000 gallons per 24 hours, increasing in volume when tested at a greater depth. The result of the analysis of this water is highly satisfactory, the Analyst's remarks being :—‘This is a hard water of a very high degree of organic purity. It is a remarkably pure water.’ Fresh estimates and other details for the proposed works, as now recommended, are in course of preparation.”

NESTON AND PARKGATE URBAN DISTRICT.—“The water supply is the property of the Council, who charge a very low rate for its use to the consumers within the district and also add considerably to their revenue by sales of water to a Railway Company. There is a constant supply pumped from a deep well in the new red sandstone and distributed by gravitation. In case of necessity, water from the Liverpool Corporation mains, which pass through the district from Lake Vyrnwy and with which the

Neston mains have a connection, can be utilised when required. The new water supply from North Wales to Birkenhead will pass through Neston and the Council have arranged with the Birkenhead Corporation to use this water should they so desire. A sample from the Council's main submitted to the County Analyst was reported as 'water of a high degree of organic purity.' The hardness, according to Clarke's scale, was twelve degrees before boiling and 3.5 degrees after boiling. The water appears to be softer than formerly, for analyses in 1874, 1895, 1896, 1897 all show 14 degrees of hardness; 1911, 13 degrees; 1913, 12 degrees.

"The public water supply has been laid on to the 17 new houses built and occupied in 1914. There are three cottages which are supplied by the piped water, but it has to be carried by the occupants for a distance of about half-a-mile. There are two cottages supplied by a shallow well, the water from which is reported on as 'very hard (27 degrees), but otherwise of satisfactory quality and fit for all domestic purposes.' The consumption of water from the public supply was, in the years 1911—1914, as follows:—

1911.	1912.	1913.	1914.
65,170,000	62,142,000	59,172,000	57,795,000
galls.	galls.	galls.	galls.

NORTHWICH URBAN DISTRICT.—"During the year the need for water has been emphasized by the constant need even during the very wet winter of cutting off the water service during the night and definite steps have been taken to increase the supply. Parliamentary sanction has been obtained for the expenditure of £20,000 to acquire additional land for waterworks purposes and to extend the limits of supply, also it has confirmed the purchase of land and construction of works the legality of which was previously open to question. The new supply is to be obtained by sinking bore-holes on land about half-a-mile from the present gathering ground at Cote Brook. From here it will be pumped to a high level reservoir and carried to the present reservoir at Hartford by an entirely new pipe line. The water is of an excellent quality."

RUNCORN URBAN DISTRICT.—"The water supply of the district is partly deep well water in the red sandstone—which is not filtered or treated in any way and analyses of which indicate a considerable degree of hardness and large amount of chlorides such as characterises similar deep well supplies on the south side of the estuary of the Mersey. With this supply is mixed an equal volume of the Vyrnwy water supply belonging to the Corporation of Liverpool."

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TARPORLEY URBAN DISTRICT.—“Tarporley Urban District is supplied by the Liverpool Corporation from their Lake Vyrnwy supply, the water mains passing through this district. The out-lying parts are supplied by springs, dip-wells and ordinary wells. All the supplies are constant and wholesome and fairly free from the risk of pollution. The Vyrnwy water is a very soft water and iron pipes are in general use. No contamination of the water by lead has occurred. No extensions have been carried out during 1914 and the district is well supplied with water, except Rushton Village, which is about 300 yards away from its water supply and the same applies to seven cottages in Utkinton Lane. The owners of these cottages are being pressed to provide a better supply. The supply of water to the cottages in Rushton is in hand and the agent to Sir Philip Egerton has promised it shall be done shortly. The water supply to cottages in Utkinton Lane, previously reported: the owner is not prepared to convey water to same, the cost of such work being prohibitive. Of course there is an ample supply of good spring water for same, only it has to be carried some 300 yards.”

WILMSLOW URBAN DISTRICT.—“The new works at Kinder belonging to the Stockport Corporation were opened in 1912 and the district is now supplied from this source. The supply is constant, good and ample for all needs. No softening treatment is required. Some parts of the rural area are supplied from wells. No complaints were made during the year. Samples of water from two wells were analysed. In one the report was unfavourable. The well was cleaned out.”

WINSFORD URBAN DISTRICT.—“The position is unchanged. The Council is still endeavouring to obtain an additional source of supply.”

YEARDSLEY-CUM-WHALEY URBAN DISTRICT.—“The two chief water supplies in your district are upland waters. The supply remains good. The water was analysed during the year and the Analyst gave a satisfactory report. The Reservoirs: Diglee and Stoneheads have been run off and washed out and coated with a thin coating of cement. During the year the district has been connected with the Fernilee supply of the Chapel-en-le Frith Rural District Council, but this supply was not needed during the year. However, it is satisfactory to know that your district has a call on this supply to supplement your own if need should arise at any future time. One case of impure water from a private source was reported. This water was analysed and found unfit for drinking and notice was given to cease using the water and to take the town's water, which was accordingly done.

There have been nine connections made to the Council's system during the year."

BUCKLOW RURAL DISTRICT.—"Mr. Metcalfe's report is:—

"Water certificates were granted for all new houses under the provisions of the Public Health Water Act, 1878, Section 6.

"Where the water supply was from wells, samples of the water were submitted to the County Analyst and a satisfactory report obtained before the houses were occupied, or certificates granted. Twenty-two samples were analysed during the year from wells, with the following results:—

10 were returned as good.

7 not recommended for domestic use.

5 unfit for domestic use.

"Action was taken with regard to the twelve unsatisfactory wells, with a view to wholesome supplies being provided. The work varied according to the condition of the water; some new wells were constructed, others were cleaned out and relined and protected at the surface and in one case pipe water was laid on.

"The consideration of a public water supply for the Township of Mobberley is being proceeded with and considerable progress can be reported. Boring has been carried out in six positions and a gauge tank constructed and the gauging of the flow from the out-crop of two springs is now being proceeded with.

"A report on the possibility of a piped water service for Carrington has not been presented, but I hope to deal with this matter during 1915."

CHESTER RURAL DISTRICT.—"Chester Rural District is supplied by the Chester Water Company, by the Wrexham Water Company and by the West Cheshire Water Company. The outlying parishes are supplied by springs, dip-wells and ordinary wells. These waters are fairly wholesome and sufficient, except in the parishes of Mickle Trafford and Ince. The water supply of Dunham Hill is completed, arrangements having been made with Runcorn Rural District to supply from their waterworks at Helsby. Ince is still under consideration.

"The following extensions have been carried out during 1914:—

- 1.—Thirty-one new houses have been connected to the Chester Waterworks main.

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- 2.—Six new houses have been supplied from the West Cheshire Water Company.
- 3.—Two new houses have been supplied from the Dunham Hill supply.
- 4.—Pumps and wells have been put in order at Hapsford, Dunham Hill and Elton.

“There has been one sample of water chemically analysed, none bacteriologically. No contamination of the water by lead has occurred.”

CONGLETON RURAL DISTRICT.—“There has been a small extension of the mains at Arclid, but there are several places in the district not supplied. The chief are Mow Cop and Mount Pleasant; the people there would be benefited by a water supply. Then Smallwood is badly off, particularly Martin’s Moss. Hassall Green will, I think, soon get a supply from Alsager. Astbury has not a good supply. Cranage is badly off for water, there being several houses and most of the residents having to carry water from the Holmes Chapel spout.”

DISLEY RURAL DISTRICT.—“The water supply is, on the whole, satisfactory. The main supply is derived from the Stockport Corporation Waterworks. A water main is being laid to Higher Disley, where it is proposed to make a reservoir and erect pumping plant. Some few houses having water from private sources should be connected to the Stockport Corporation main.”

MACCLESFIELD RURAL DISTRICT.—“Details of the year’s work will be found in Surveyor’s Report. As will be noted, the main features are the construction of service reservoirs and the laying of water manis at Taxal and the laying of water mains also at Prestbury.”

The Surveyor remarks :—“Twelve houses were newly supplied from the Council’s water undertakings. The number of houses so supplied are as follows :—

Adlington	...	...	2
Butley ..	...	...	72
Prestbury	...	...	67
Taxal ...	...	...	133
Tytherington	...	...	23
Upton ...	...	...	49

“Lord Vernon’s waterworks supply 563 houses in Poynton. The Stockport Corporation waterworks supply 10 houses in

Poynton, 51 in Woodford, 44 in Chorley and 26 houses, a Convalescent Home for a Manchester Hospital and a number of residential schools in Great Warford. The Buglawton Urban District Council supply 29 houses in Eaton. Colonel Broeklehurst's waterworks supply 80 houses in Hurdsfield. Mr. Whiston's waterworks supply 104 houses in Sutton. Mr. Allen's waterworks supply 95 houses in Rainow. Several hydraulic rams and wind motors were erected for raising supplies to houses and farms. Five new pump wells were sunk and 11 others were repaired, deepened, or otherwise improved. Two service reservoirs, high level and low level, were constructed at Taxal and 1,050 yards of 4-inch and 3-inch mains were laid in connection therewith. Nine hundred yards of 3-inch mains were laid in Prestbury. Eleven samples of water from pump wells were analysed chemically, eight of which were reported as being in some degree unsafe for dietetic purposes. In each of these cases the occupier was at once warned of the danger attending the use of the water and steps were taken to either improve the supply or provide another one. One sample was tested for the presence of lead and was reported to contain heavy traces. This water was proposed to be used for dietetic purposes and the occupier was warned of its unfitness."

MALPAS RURAL DISTRICT.—"Malpas Rural District is supplied largely from the Liverpool Corporation main. The main runs through the town of Malpas which it supplies, also the parish of Bickley. Other parishes are supplied from public and private wells. The supply is constant and there are no complaints as to action on lead. There is a sufficient supply and the wells are fairly free from the risk of pollution. One sample of water was chemically analysed during the year."

NANTWICH RURAL DISTRICT.—The Surveyor remarks: "New water-mains have been laid in Faddiley to supply Woodley Hall, the Blackhurst and the Holywell farms. The total length of mains laid was 2,060 yards, which added to 308,064 yards, the length previously laid, gives a total of 310,124 yards of water-mains now laid in the Rural District. During the year 40 houses were connected to the water-mains, making a total of 3,819 houses now supplied by the water-mains of this Council.

"The quantity of water consumed in the Rural District in 1914 was 82,355,000 gallons and in addition 1,343,000 gallons were supplied to Bickley for the Malpas Rural District Council. The consumption of water per house per day for 1914 was 59.1 gallons and the consumption per head of population per day 11.4 gallons.

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“In April a Public Inquiry was held by the Local Government Board into the application of the Council for a loan for the water supply of Audlem and District, which included the following townships, viz. :—Audlem, Buerton, Hankelow, Hatherton, Wrenbury, Dodcott, Newhall, Woodcott, Sound, Broomhall, Baddington, Coole Pilate and Austerson. The sanction of the Local Government Board to the scheme was received in August. Specifications and quantities were prepared and tenders have been accepted amounting to a total of £19,898 and this work will shortly be commenced.

“Plans have also been prepared for an extension of the water mains to the County Council’s small holdings at Ridley, and an inquiry was held by the Local Government Board’s Inspector in November and sanction to the scheme was received in December. Tenders were invited and a contract entered into for the carrying out of this work and as soon as the pipes are received it will be commenced.”

The Sanitary Inspector remarks: “During the year an inquiry was held in the Public Hall, Audlem, by a Local Government Board Inspector to consider an application made by your Council to borrow £21,750 for the extension of a public water supply to Audlem and the adjacent townships. The inquiry was largely attended by Councillors and others interested in the scheme. The application was strongly opposed by the Chairman and several members of the Audlem Parish Council, together with representatives of the parishes affected. Notwithstanding the opposition the Local Government Board has sanctioned the loan and your Council has decided to invite tenders for the laying of the necessary water mains. It is to be hoped that the scheme will soon be completed and a good supply of wholesome drinking water laid on to the farms, villas and cottages, many of which are at present obtaining their drinking water from condemned sources and others from very suspicious sources.

“A similar inquiry was held at the Ridley Day Schools for the purpose of hearing an application for the borrowing of £710 to extend the water mains to the Cheshire County Council’s small holdings in that township. The loan has been sanctioned and the necessary work is already in hand.”

NORTHWICH RURAL DISTRICT. — “During the year great attention has been paid both to the quality and quantity of water supplied in the district; 31 chemical and 12 bacteriological examinations being made of water from the Council’s public

supplies at Anderton, Wincham and Marston, Organsdale and Delamere (a public well), the Sandiway supply for Hartford, Cuddington and Weaverham, a public fountain at Acton Bridge and one at Crowton and the Moulton supply before and after filtration through a Candy filter; all proved good, the Candy filter reduced the bacteria present by almost 50%. Extensions of existing systems have been executed at Warmingham Lane, Kinderton, for two new dwelling-houses and at Shipbrook Road, Rudheath, for six new houses. The districts of Byley, Whatcroft and Rudheath depend upon shallow wells for their supply, which is not sufficient; the part of Delamere adjoining Kelsall is also ill supplied with water. During the year several different schemes for supplying various portions of the district have been considered, the full cost of conveying water to thinly-populated districts being a real stumbling block to comprehensive schemes; although as a set off it should be remembered that wide water supplies allow great latitude in building, enhance the value of land, make the cost of water less to the individual and promotes the erection of houses in the country districts instead of huddling them together in 'streets,' an asset not shown in the balance sheet, but unmistakably improving the national health and physique and promoting good sanitation at a cheaper rate. In the Surveyor's report will be found an exhaustive account of the water systems in the district.

The Surveyor remarks: "The works at Cuddington, Hartford, Weaverham (Sandiway) and Oakmere (part) have satisfactorily supplied the above townships during the year and also have afforded no less a quantity than 1,110,000 gallons to the neighbouring waterworks at Weaverham Village, which also supply the Township of Acton. The yield of the springs throughout the year has been exceptionally good. The gaugings taken show the following yields:—Minimum 107,055 gallons per day, maximum 111,690 gallons per day, average 109,650 gallons per day. The consumption has been as follows:—Quantity pumped during year 26,389,000 gallons, or an average daily quantity of 72,298 gallons. On the basis of an estimated population served of 2,748 after the necessary deduction for Weaverham and Acton has been made, the consumption per head is about 25.2 gallons, or a reduction of 2.8 gallons per head compared with last year. This clearly proves that the step the Council took in June last in appointing a special tap inspector, to re-washer taps where necessary, has been a very wise one, for by that arrangement the Council have thereby avoided pumping no less a quantity than 2,808,000 gallons since the time of the man's appointment, representing a saving, I estimate, equal to the man's salary. The

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oil fuel supply has been increased and a new oil store and tank erected at the works, thereby getting rid of the barrels which were formerly used. A number of air valves have been added to the mains with beneficial results. Owing to the inefficient supply at Gorstage in the Weaverham Township, a length of 120 yards of 2-inch main has been laid in substitution for the existing $\frac{3}{4}$ -inch and 1-inch pipes. Since the work has been carried out no further complaints have been received.

“The supply to Barnton is still unfortunately unsatisfactory, the Little Leigh Reservoir having to be drawn upon fairly regularly. It is hoped, however, in the near future to provide a means of supply for this township in conjunction with a number of other townships and thus solve a difficult question by means of a scheme which will be of ‘general utility’ in the Council’s district. One of the boilers at the pumping station has been re-tubed and repaired and put in good order.

“The Council’s scheme for the supply of Byley, Rudheath and Whatcroft from the Middlewich Urban District Council’s main at Davenham has (although previously the Local Government Board said they ‘were prepared to approve it’) had to be abandoned—at any rate in its original form—the Northwich Urban Council’s Water Bill having made it a condition that the Council shall take the whole of the water they require for the most thickly populated part of Rudheath from their proposed new scheme of supply, which is not likely to be completed for several years. This has of course taken the backbone as it were from the financial side of the Council’s project to supply the truly rural district and they are therefore compelled to find some new method for dealing with the remaining area. It is true that the Northwich Urban District Council’s Bill leaves it open for this Council to take a supply not exceeding 20,000 gallons per day for the remaining part of Rudheath and the Townships of Byley and Whatcroft, but the Council have also to consider the Townships adjoining, viz. :—Allostock, Nether Peover and Laeh Dennis, which will in the near future, if not immediately, have to be linked up with the scheme laid down for these Townships. Twenty thousand gallons is therefore totally inadequate for the Council’s needs and it would not in my opinion be in the best interests of the district as a whole for this offer to be accepted, as even supposing this quantity would suffice for the present needs of the six townships, it cannot possibly be sufficient for the future development of the townships. The Council are therefore seriously considering a new scheme of supply which will embrace not only these townships, but also a number of others. This of course cannot be matured

in a hurry, whereas, if the Council's original scheme had been approved, the supply to the townships referred to would ere this have been a reality.

"The supply to Clive, Stanthorne and Wimboldsley (part) has been regular, as also has the lack of pressure and continuity of supply to certain parts of the area. The mains have been extended in the township of Stanthorne for one new dwelling-house and schemes for a new supply to certain parts of Stanthorne and Wimboldsley are receiving the consideration of the Council.

"Alternative schemes of water supply for Crowton have received the consideration of the Council. The Parish Council have been interviewed and the various landowners are to be approached shortly with a view to offers of contributions being obtained towards the cost of the laying down of one of the projected schemes.

"The water mains at Kinderton have been extended along Warmingham Lane for a distance of 235 lineal yards by means of an one inch tube for the benefit of a new small-holding and one cottage.

"A continuous supply of water has been maintained in Lostock Gralam throughout the year. The new supplemental works at Lostock Hollow have been completed and are now in a very satisfactory position. Two new sources of supply have been obtained in close proximity to the Lostock Hollow Works and are being tested periodically both as to quality and quantity. The Analyst's latest reports are as follows :—

Griffith's field supply—"Very hard water, but of a satisfactory degree of organic purity."

Kinsey's field supply—"Very fair although hard water, and may be used for domestic purposes."

The last report of the existing supply is—"I consider this to be a very good water and fit for domestic use."

The yields from the two new sources of supply shortly after completion of the work of collection were as follows :—

Griffith's field	...	5760	gallons per day.
Kinsey's field	...	7512	„ „

13272

"At the close of the year these figures are greatly exceeded, but it is not safe as yet to assume any figures greater than those

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given. Thus the total supply available from the three sources at Lostock Hollow with the above figures as basis and the yield of existing supply is over 21,000 gallons per day. The total supply therefore available for the use of the township including the yield at the old works, viz., 31,000 gallons, is 52,000 gallons per day, whereas, the maximum requirements of the township including an estimated quantity of 5,000 gallons for the prospective extension of the mains to the Moss Lane district is only 35,000 gallons. The supply therefore exceeds the maximum demand by 17,000 gallons per day. The total storage accommodation provided in the reservoirs (exclusive of Tower Tank) is 62,000 gallons. It will thus be seen that the township is in the happy position to be able to afford a supply to neighbouring townships should the necessity arise. I should point out that the unsatisfactory new pumping plant at Lostock Hollow was removed during the early part of the year and a more powerful plant substituted consisting of five B.H.P. engine and treble plunger pumps. The old three inch mains which were found to be irregularly laid and suffering from incrustation were discovered to be the chief source of trouble. The mains were cleaned through to the tank, a number of faulty angles removed and several double acting air valves fixed. This caused a reduction in the frictional head equal to 20 lbs. per square inch. The new plant supplied by the manufacturers was guaranteed to deliver 2,340 gallons per hour, whereas in practice it delivers 2,700 gallons per hour and under present circumstances it has been found not necessary to use both pumping plants together. The plant is now therefore a complete success.

“Moulton, Davenham and Leftwich have been well served during the year. The service fittings in the district have been inspected and where new washers were necessary they have been fixed by the Inspector the Council have specially appointed for the purpose. Slight engine and boiler troubles have been experienced during the year, causing an extra demand upon the Middlewich Urban Council's water which is used to supplement the Council's supply. The yield of the springs during the drought was exceptionally low, and considering that the daily quantity was, in my predecessor's time, put down at 44,000 gallons, it seems remarkable that the yield does not equal the daily demand of about 30,000 gallons. As a matter of fact the minimum yield was found to be not more than 24,000 gallons per day. Thus the demand on Middlewich has been increased by 23,000 gallons as compared with the previous year, the full quantity taken in this way for the year being 1,655,000 gallons, or an average of about 4,534 gallons per day as compared with

4,471 gallons per day last year. The whole of the water pumped at these works passes through a Candy pressure filter and samples of the water taken before and after filtration have been forwarded for bacteriological and chemical analysis. The bacteriological reports show a reduction in the number of bacteria from 102 to 51 and that bacillus coli communis was not found in 100cc. The chemical reports show that after the water has been filtered the quantity of oxygen absorbed is reduced but that otherwise the water is unaffected. It is however considered to be very satisfactory by the Council's Medical Officer of Health. About 50 service connections have been renewed in the township of Moulton during the year.

"The Weaverham (Village) and Acton works have maintained, with the assistance of the Sandiway Waterworks, a constant supply during the year. The total quantity taken to supplement the village works, amounts to 1,110,000 gallons, or an excess over last year of 765,000 gallons, being average for the year of about 2,096 gallons per day, as compared with 945 gallons per day last year. Repairs to the engine have to some extent accounted for this increased quantity being taken, when it was necessary to depend entirely on the Sandiway supply.

The Surveyor remarks:—"Samples of drinking water have been analysed during the year as follows:—Thirty-one chemically; 12 bacteriologically. Of these eight chemical and nine bacteriological were from the Council's Waterworks and public supplies, and in each case the water was found good, viz.:—

Anderton Waterworks.

Wincham and Marston Waterworks.

Public Well, Organsdale, Delamere.

Cuddington, Hartford and Weaverham (Sandiway) Waterworks.

Public Fountain, Acton Bridge.

„ „ Crowton.

Moulton, Davenham and Leftwich Waterworks (before and after filtration).

"Four of the chemical samples were taken from new sources of supply discovered at Lostock Hollow, Lostock Gralam. These were also proved to be good. The remainder were taken from private supplies, all of which, excluding three, were found to be good with the exception that in several instances the water was found to be very hard, a feature upon which the Analyst does not condemn the water if the user does not object to the hardness.

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In one case where the water was found bad the supply has been abandoned and in others means are being taken to effect improvements."

RUNCORN RURAL DISTRICT.—"The Runcorn Rural District consists of 40 townships, a considerable proportion of which either adjoin, or are within the statutory limits of distance (for purposes of water supply) from some local authority other than your Council and from whom they can obtain a sufficient and continuous supply of first-class drinking waters. Thus we find that :—

Halton and Weston (with Weston Point) are supplied by the Runcorn Urban District Council, with water from the Liverpool Corporation Vyrnwy Water Mains, this water being first delivered to Runcorn Urban Area and thence distributed to these townships.

Aeton Grange, Appleton, Daresbury, Grappenhall, Hatton, Latchford Without, Moore, Newton-by-Daresbury, Stockton Heath, Stretton, Thelwall, Walton Inferior and Walton Superior, are all supplied by the Warrington Corporation Water Mains; and—

The Aston Estate, the Norton Estate and the townships of Aston, Dutton, Preston-o'-th'-Hill, Sutton and Norley, are all supplied by your District Council, direct from the Liverpool Vyrnwy water mains.

"The above townships are all supplied by Local Authorities, other than your Council, with waters derived from sources outside your district.

"Derived from sources within your district there are the following water supplies :—

Frodsham and Frodsham Lordship are provided with an excellent supply, constant in character, which is obtained from a deep well and bore-hole in red sandstone.

Helsby is also supplied by a deep well and bore-hole in red sandstone.

"These two supplies are provided and distributed by the District Council.

"Further to these :—Manley has a private water supply to 56 houses, but this water supply has now been purchased by the District Council.

"Budworth has a private water supply to 69 houses; and—

"Grappenhall has a private water supply to 36 houses.

“Thus, out of approximately 6,561 houses in the area of your Council, about 5,067 houses are provided with continuous supplies of first-class drinking waters.

“The remaining 14 townships are mainly supplied by private wells, public wells, running pipes from springs, wells and springs, or from combinations of two or more such supplies. These townships are Albanley, Antrobus, Aston Grange, Bartington, Clifton, Crowley, Keckwick, Kingsley, Kingswood, Newton-by-Frodsham, Seven Oaks, Stockham, Whitley Inferior and Whitley Superior.

“From the foregoing, it is seen that your district contains 40 townships, 26 of which are supplied by a constant supply of drinking water and the chemical analysis of all these public water supplies indicate that they are as good as can be obtained, whether they are obtained from other Local Authorities, or from sources within your own area.

“No progress can be reported as having been made in the provision of further water supply to Albanley and I would suggest that further attention be given to this question. The nearness of the Manley Waterworks appears to suggest a remedy.”

TARVIN RURAL DISTRICT.—“The northern portion of the district is supplied partially by pipe supply and partially from public and private wells. The parishes of Ashton, Mouldsworth, Kelsall, Willington, Beeston, Tilston Fearnall, Tiverton, Saughton and Waverton, comprising about 410 houses, are supplied by pipe; the remaining parishes, with about 1,430 houses, from wells. The southern portion of the Tarvin Rural District is supplied, as to the parishes or parts of the parishes of Aldford, Buerton, Churton-by-Aldford, by the Wrexham Waterworks; the remaining parishes by springs and deep and shallow wells.

“The following extensions and improvements have been carried out in the Northern Division :—

A new tube well has been made at Belle Vue Farm, Guilden Sutton, and a new tube well at Clotton.

“The following extensions and improvements have been carried out in the Southern Division :—

The two village wells at Shocklach have both been thoroughly cleaned out. Pumps repaired and defective parts replaced.

The Farndon village well has been cleaned out and pump thoroughly repaired; also Churton village pump.

A well at Oak Cottage, Farndon, has been cemented down to the rock, recovered and pump repaired.

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A well at Carden Arms, Tilston, thoroughly cleaned out and pump repaired (since last sample was taken in October last).

A well at Tilston Rectory cleaned out.

A spring at Higher Burwardsley protected with wooden hinged cover.

A large reservoir tank, built on Harthill Park, to contain about 45,000 gallons, to eventually supply Harthill, Burwardsley and parts of Tattenhall and Broxton.

“Sixteen samples of water were taken and analysed chemically and none bacteriologically.

Two houses at Woodside, Ashton, are without a proper supply and two houses at Mouldsworth. These houses could easily be supplied from the water main, the same owner owning cottages and main. Farndon, Burwardsley, Broxton, Tilston and Harthill water supplies you have had before you for consideration. The existing water supplies are fairly free from the risks of pollution and no contamination by lead has occurred.”

TINTWISTLE RURAL DISTRICT.—“Tintwistle is supplied from its own reservoir, situated about one and a half miles from the village. It is both plentiful and good. Matley (that portion situated near the Stalybridge Tram Terminus) is supplied from springs which run into a reservoir at Gallows Clough. There has been a good supply of water to the houses and no complaints have been made regarding the quality. Some of the surrounding farms have had artesian wells sunk and the water pumped by means of wind mills. Hattersley—The district is composed chiefly of small farms, each having its own water supply from springs in close proximity to the house. No complaints have reached me with regard to a scarcity in any of the houses.”

WIRRAL RURAL DISTRICT.—“Two townships, viz.:—Prenton and Noctorum are supplied by the Wirral Waterworks Company and 29 townships derive their supply from the West Cheshire Water Company. Moreton, Saughall Massie and Grange are supplied from the West Kirby Waterworks and Bidston from Birkenhead. By the terms of the West Cheshire Water Act, 1911, the Company have to supply water softened to not less than 10 degrees of hardness on Clark's scale from the Hooton Pumping Station. The County Council are the authority entrusted with the duty of ascertaining that this undertaking is carried out. There are still a number of houses which obtain their supply from sources other than that of the piped water.”

Section IX.—Sewerage and Sewage Disposal.

Much good work has been done during 1914 in the matter of providing additional sewers and maintaining in good order those in existence, besides attending properly to the disposal of the sewage thus collected. There is still a great deal remaining to be done and I would name the following as requiring early consideration:—

Congleton Municipal Borough—Astbury Marsh, West Heath and Daneinshaw are stated to be without a proper system of sewers. Two factories in the borough on the water-carriage system deliver their sewage untreated into the river and some difficulty will be found in remedying this. The disposal works have been very considerably improved during the year by the cleaning out of the septic tanks and the provision of further humus tank accommodation.

Crewe Municipal Borough—The extensive new works on the south side of the town have now been completed and are working satisfactorily. Attention is however needed to the works on the north side.

Stalybridge Municipal Borough—The disposal works are not satisfactory but steps are being taken to complete them and to provide additional means of purification. The delay has been largely due to the death of the Engineer who had charge of the extensions.

Alsager Urban District—The new works have been in operation for a short time and appear to be doing well. I think before very long, however, an additional percolating filter will be required.

Altrincham Urban District—Additions and improvements are under consideration.

Cheadle and Gatley Urban District—The sewers need extension at Styal Road and Outwood.

Compstall Urban District—It is said that the Council are considering the question of a sewerage scheme for "the urban portion" of this village.

Hale Urban District—The question of removing the site of the sewage disposal works here, it is understood, is still under consideration.

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Handforth Urban District—The sewerage scheme is believed to be still under consideration here.

Hoole Urban District—Some defective sewerage work done under a comparatively recent contract has now been made good.

Lymm Urban District—Considerable alterations to the sewerage system have now been completed.

Marple Urban District—The sewerage of the Low Marple area is well in hand.

Nantwich Urban District—Further delays have been occasioned here and to be quite frank, the impression I have received, be it right or wrong, is that the Council are not in an anxious hurry to proceed with this scheme.

Sandbach Urban District—Some improvements have been carried out at the disposal works during the year.

Wilmslow Urban District—The rural portions of this area (Morley and the Hough) are still without a proper system of sewers.

Winsford Urban District—A large amount of re-drainage work has been recently carried out here.

Yeardsley-cum-Whaley Urban District—Sewerage work is still proceeding here, but not many house connections have yet been made owing to a difficulty with subsoil water.

Bucklow Rural District—In this district the Council is considering improvements for the areas of Timperley and Northenden and special consideration to the possibility of improvements at Baguley, Peover Superior, Styal, Northen Etchells, Partington and Mobberley.

Chester Rural District—Some improvement has been effected in Christleton, Littleton, Elton Green and Little Stanney and a new scheme has been prepared for Great and Little Saughall. The sewerage of Mickle Trafford is being considered.

Congleton Rural District—Mow Bank and Thurlwood appear to need attention in the matter of sewerage.

Malpas Rural District—The Council is still considering the question of improving the disposal works.

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Nantwich Rural District—The sewerage of Haslington, so badly needed for many years, is shortly to be commenced. The delay in the Nantwich Urban District Council scheme leads to a perpetuation of the unsatisfactory conditions at Stapeley. The village of Shavington needs attention in the matter of sewerage. The sewerage of Willaston and Wistaston is, I believe, now completed. The district of Bunbury is somewhat urgently in need of attention in this respect.

Northwich Rural District—Remodelling and extension of the works at Hartford, Davenham, Lostock Gralam, Gunnersclough and Barnton is under consideration. Sewer extensions have been carried out at Rudheath, Wincham, Comberbach and Barnton.

Runcorn Rural District—The township of Clifton appears to need attention in the matter of sewerage.

Tarvin Rural District—It has once more to be recorded that Farndon, Tattenhall and Churton are still without proper means of sewerage.

Tintwistle Rural District—The sewage disposal works at Mosley are still more or less unsatisfactory and a new scheme of disposal is being planned.

Wirral Rural District—The new disposal works at Thornton Hough and Caldy are now completed and plans have been approved for the reconstruction of the Eastham disposal works and for the laying of new sewers in Willaston and Eastham.

I append certain comments of the District Medical Officers of Health, Surveyors and Inspectors on this matter.

CONGLETON MUNICIPAL BOROUGH.—“A pumping plant was installed at the Sewage Outfall Works for the purpose of pumping sludge out of the tanks on to the new drying beds and large humus tanks are in course of construction. The effluent was analysed several times and found to be satisfactory. A few of the outlying districts are still without sewers and also some back streets in the town. The 9-inch sewer was extended in Spragg Street 46 yards, in Hatter Street 164 yards, in Brown Street 63 yards and in Moss Road 40 yards.”

CREWE MUNICIPAL BOROUGH.—“The sewage is now disposed of by:—

- (1) Open septic tanks and percolating filters (new installation).
- (2) Broad irrigation.
- (3) Double contact beds on a small scale.

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“The new sewage works, a full description of which was given in a previous report, were completed in 1914 and in full working order in the later months. That these new filter beds are doing their work is readily seen from the certificates of the County Analyst.

“It is gratifying to this Authority to find that such a large undertaking has been completed at a cost below the original estimate and that the results given on analysis reach a high standard. My colleague, the Borough Surveyor, is to be congratulated on the efficient working of such an up-to-date method of treating sewage. The new works take the sewage from the southern outfall with the result that all the land used for irrigation purposes and draining into the Valley Brook is now no longer a source of pollution to that stream. No new sewers were laid or sewer ventilating shafts erected during 1914.”

DUKINFIELD MUNICIPAL BOROUGH.—“The sewage of the district, so far as the sewers themselves are concerned, is very efficiently and extensively carried on, everything being constructed according to a sewage plan, having Bradley Hurst as the outlet. The sewage is conveyed by means of a high-level and low-level sewer and is treated by precipitation with chemical filtration and passes through the land into the river. The plot of land at Bradley Hurst is 63 acres in extent. Over 12,000 tons of sludge are sent over per annum from the sewage. The sewers are ventilated at the manholes and are regularly flushed, more especially in dry weather. The following extensions and alterations to the sewage works are in course of construction:—
 (1) Five circular filters 84 feet in diameter by 7 feet deep.
 (2) One rectangular precipitation tank, with a holding capacity of 600,000 gallons. (3) Two storm tanks each with a capacity of 300,000 gallons. (4) Two detritus tanks with automatic screens driven by electric motor. It is also proposed not only to light the place with electricity, but also to use it for pumping purposes. House drainage is also carefully attended to and personal visits are paid to the houses to see as to the proper trapping of drains and the condition of the slopstone pipes.

“The condition of the River Tame is, therefore, considerably better as regards pollution, owing to the time and money spent upon the purification of sewage by the various localities on its bank, as no sewage now enters the river from any of these districts unless previously treated.”

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STALYBRIDGE MUNICIPAL BOROUGH.—“The older portions of the borough are now well sewered and extensions are constantly being made into the more outlying portions of the town. The swage is disposed of along with that of Dukinfield at outfall works, situated at Bradley Hurst, in the township of Dukinfield. The sewage farm has an area of $63\frac{1}{2}$ acres and the average dry weather flow of sewage coming to the works from the combined districts is about 2,000,000 gallons per 24 hours. The sewage received at the works passes to a screening chamber, where coarse suspended matter is arrested by a grating and removed by hand rakes. Leaving the screening chamber the sewage has mixed with it alumino-ferric and ferrozone and then passes either into large sedimentation tanks or into roughing filters. The sedimentation tanks are 12 in number, arranged in two sets of six, of 80,000 gallons capacity each and are worked upon the continuous flow principle. In these tanks a large amount of matter is separated from out of the sewage and is deposited as sludge at the bottom of the tanks. The roughing filters, of which there are five, with an aggregate area of 1,100 square yards, have a bed of coke 2ft. 8in. in depth, through which the sewage filters and the coke, when it has played its part, is removed and utilised as fuel for the boiler furnaces, its place being taken by fresh supplies of coke. The effluent from the roughing filters and sedimentation tanks is distributed by means of sprinklers, attached to iron distributing pipes running transversely across the beds at suitable intervals, over large percolating beds, of which there are seven, with an area of $2\frac{1}{4}$ acres, well excavated and drained and filled with selected graded clinker of a depth of five feet. From the percolating beds the effluent passes partly by open channels and partly over and through plots of land to the outfall chamber and thence into the river. These arrangements are only sufficient to deal satisfactorily with about two-thirds of the normal flow of sewage, besides which there is the storm water to be dealt with, so, to provide for the satisfactory treatment of these additional quantities, the Joint Sewerage Board are at present carrying out sundry alterations and additions to the works. The large 3-feet sewer bringing the sewage to the screening chamber has been duplicated and new detritus tanks have been constructed and equipped. Two new storm water settling tanks are being constructed on the low-lying land adjoining the river. These will have a total capacity of 600,000 gallons and will receive a part of the sewage after it has left the screening chamber and has been treated with alumino-ferric and ferrozone. The present sedimentation tanks have been added to by the construction alongside them of three rectangular

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tanks, each 100 feet in length and 50 feet in breadth, with a total capacity of 600,000 gallons in place of four pyramidal tanks which were contemplated and would have had a capacity of only 200,000 gallons. These new sedimentation tanks will be worked upon the continuous flow principle, but the flow will be so arranged by a valve as to take place at a depth of 18 inches below the surface. Beyond the present roughing filters, five new circular percolating filters, seven feet in depth and of an area of 616 square yards each, are being constructed. These filters are being charged with nicely graded coke instead of with clinker, as of late the clinker obtainable has been of too friable a nature. The sewage is to be distributed over their surfaces by means of rotating arms. Between the present large percolating beds and the river on the low-lying, sewage-logged portion of the farm, which has up to now served—as well as it could—as an irrigation area for the effluent from the percolating beds, are being constructed two humus tanks, 3ft. 6in. in depth and of a capacity of 200,000 gallons, to intercept any suspended matter in the effluent immediately before its final outlet to the river. The distribution of the sewage upon the large percolating beds by the Coombe's sprinklers has not always been satisfactory owing to the sprinklers at times getting choked and becoming inefficient, or even inactive, from corrosive action of the sewage, or from the rapid formation of spiders' webs around the sprinklers while the bed is having its periodical rest. In order to obviate this difficulty in connection with one of the beds, two 500 gallon hydraulic rams, to act automatically, were put down as an experiment to force the sewage through the sprinklers so as to clear them and enable them to act more continuously, but they have not been an entire success, the alternating arrangement not always working satisfactorily. Moreover, the Coombe's sprinklers have been replaced by a form of sprinkler devised by Mr. H. W. Stafford, the manager of the works. A further extension of the filtering area is contemplated and plans for it have been submitted to the Local Government Board. The sludge deposited in the sedimentation tanks is drawn from the tanks and ejected into a sludge well, from which it is conducted to large sludge-presses which convert it into a satisfactory sludge cake, which has been found to be of no little value as a manure. A third sludge press has been placed alongside the other two presses. During the year 17,807 tons of wet sludge were taken from the tanks and pressed into sludge cake of a weight of 3,594 tons. Of this sludge cake no less than 1,997 loads have been taken by farmers for use as manure. The road dirt or sand taken from the detritus pits amounted to 384 tons.

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“The sewage from the district of Matley (under the Tintwistle Rural District Council), adjoining the Mottram terminus of the Stalybridge Borough, is but very imperfectly dealt with and the effluent enters a stream in our borough. This sewage must of necessity gravitate into our borough and I have for the past few years advised its reception into our sewers so that it might be efficiently dealt with along with our sewage at Bradley Hurst. The Joint Sewerage Board, who for a long time steadfastly refused to accept this sewage for treatment, gave way upon this matter and decided to receive and treat this sewage for a certain annual payment, this decision being mainly influenced by the intervention of the Local Government Board. The terms, however, have not commended themselves to all parties concerned and no settlement has been arrived at. Meanwhile, the Tintwistle Rural District Council have been informed that the Local Government Board would be prepared to sanction borrowing powers for the construction of sewage works in and for the district of Matley, if a suitable scheme were presented to the Board. The construction of such works in the closest proximity to our boundary and adjoining one of the best residential districts of our borough would be very detrimental to the interests of that district from every point of view and the bare possibility of such an event has again aroused our Council to seek powers to amalgamate that portion of Matley which adjoins our boundary and which derives its many advantages from that very proximity to our boundary.”

ALSAGER URBAN DISTRICT.—“The new works were opened on January 28th by the late Chairman. Samples of effluent have been taken at regular intervals, sent for analysis and reported on as satisfactory. Further arrangements have been made for the more facile and complete disposal of sludge which will considerably relieve the tanks. The entire scheme appears to work efficiently considering the short period since its inception. The sewers have been well looked after. No new sewers have been constructed.”

ALTRINCHAM URBAN DISTRICT.—“The treatment of the sewage of the district is carried out at the Council's farm at Dunham Massey, by sedimentation tanks and land filtration. A commencement of separating the surface water from sewage has been made on the east side of the district, with the object of relieving the sewers during storm times and further work in this direction is contemplated immediately. A scheme for the extension of this work is now sanctioned by the Local Government Board and further works are being carried out. As regards the sufficiency of the

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arrangements at the sewage disposal works, an expert engineer is at present engaged upon a scheme and additions and improvements are contemplated."

HIGHER BEBINGTON URBAN DISTRICT.—"The district is sewered throughout, except a few outlying residences. The sewers are flushed periodically. The outfall is into the River Mersey through the sewers of the Lower Bebington District by arrangement with the Council of that area."

LOWER BEBINGTON URBAN DISTRICT.—"There is an efficient system of sewers which receive sewage not only from the district, but also from Higher Bebington, Spital-cum-Poulton and part of Birkenhead. There is no method of purification utilised. The crude sewage at the Southern outfall is retained in a tank with a Penstock valve and is then discharged."

BOLLINGTON URBAN DISTRICT.—"The main sewer and outfall works have worked very satisfactorily during the year. Samples of the effluent taken by the Mersey and Irwell Inspector have been very free from deleterious matter. With the exception of certain portions which have hitherto been found too inaccessible or too isolated the whole district is sewered."

BOWDON URBAN DISTRICT.—"The sewage disposal system in Bowdon is by detritus tanks, settling tanks and irrigation of land and works satisfactorily. There have been no complaints about the sewage disposal—a few houses in the rural part of the district are without a proper system of sewerage, but adopt the cesspool methods. These cesspools are at a safe distance from the houses and are periodically attended to."

BREDBURY AND ROMILEY URBAN DISTRICT.—"The district is well sewered and drained. There are two main drains the first taking 964 houses from Romiley and a part of Woodley and connected with the outfall works at Otterspool Bridge and the second taking 844 houses from Bredbury and the rest of Woodley and connected with the Warth Meadow Outfall Works, Otterspool, is on the bacteria and land filtration system and works well. At Warth Meadow, after bacteria contact, the sludge is pumped up on to lagoons, where it is dried and is then carted away by farmers, as manure. This has also worked well. The plant, etc., is kept in good working order and several additions and improvements have been made during 1914, as detailed in the Inspector's report. The reports from the Mersey and Irwell Inspectors on the effluent from these sewage works have been satisfactory."

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The Inspector states: "It has only been necessary to extend the 9-inch sewer for a distance of 100 lineal yards, at Greave, to take in the sewage from property recently erected. All the new property has been erected where the sewer has been adjacent. Water closets have been erected. The total number of houses discharging sewage to Bredbury Outfall Works is 844 and to Romiley Outfall Works 964. At the Romiley Outfall Works, two of the fine filter beds have been renewed, with new filtering medium and one partly renewed, at a cost of £150 and at the Bredbury Works town's water has been laid on from the Welkin Mill to the Manager's house; a pump-house built and two sludge pits made. The Inspector for the Mersey and Irwell Rivers' Committee only reports on two samples of effluent, viz., June 23, 1914, 21st on list out of 55 samples, from the Romiley Works; July 21, 6th on list out of 42 samples from the Bredbury Works."

BROMBOROUGH URBAN DISTRICT—"The more urban parts of the district are well sewered. The sewage is treated in septic tanks and contact beds. A re-construction of the sewage disposal works at Dibbinsdale has been carried out, so as to cope with the increased work required of them and to bring them into line with more modern requirements. A sample of effluent taken when these beds were known to be at their worst, was analysed and was found to require a greater amount of oxidation by filtration. From the Tile Yard Disposal Works a sample of effluent was taken under similar conditions as those referred to in the Dibbinsdale sample and similarly a higher degree of oxidation was found to be necessary to obtain a satisfactory effluent. On analysis later, effluents were found in order. From Bromborough Pool Village and works the sewage is discharged into the Mersey at low water mark. From the Mersey Chemical Works and from the 15 cottages connected with the powder magazines the sewage is passed directly into the river. Some of the large residences have provided their own installations to deal with their sewage and pass the discharge through filter beds. There were 41 inspections of house drainage made during the year."

CHEADLE AND GATLEY URBAN DISTRICT—"The sewage works continue to act very satisfactorily as in previous years. Whenever samples of the effluent have been taken by the Inspector of the Mersey and Irwell Joint Committee for analysis, they have been reported on as very good or good. When the outfall works was first brought into use, the sewage was treated with a solution of 'alumino-ferrie' and then passed into settling tanks and from thence on to filter beds consisting of sand, gravel and polarite.

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As this process was very expensive it was changed and the sewage allowed to settle in open tanks and then the effluent passed on to the land, no chemicals being used at all. This process your Surveyor informs me works satisfactorily. There are 14 acres of land which have been levelled up and can be used for land filtration. The sewage is now treated with alumino-ferric before passing into the settling tanks. The only parts of the district now which are not properly sewered are Styal Road and Outwood. If the Outwood District was properly sewered it would soon become a residential area."

COMPSTALL URBAN DISTRICT.—"The sewage consists of slopwater and is conveyed by the sewers to a reserve, which collects river and spring water for the turbine at the mills, whence it flows into the river. The outlets in the reserve are constantly cleaned and the effluvia arising from the reserve has been practically imperceptible. Your Council are considering the question of a sewerage scheme for the urban portion of the district."

ELLESMERE PORT AND WHITBY URBAN DISTRICT.—"The main portion of the town possesses a water-carriage system and the sewers are being extended with its growth. No new sewers have been laid this year; provision was made for the new houses built during 1914 in the previous year, viz., Enfield Road, 87 yards, 12-inch pipes. All the sewers are flushed once a month. The drains of 10 houses have been tested."

HALE URBAN DISTRICT.—"That portion of the sewage from the South side of Hale Road, with a little on the North side, is dealt with at the Council's Sewage Farm, while the major portion of that from the North side of Hale Road is dealt with (by arrangement) at the Altrincham Sewage Farm.

"The following new work has been done during the year :—

- (a) New sewer in Hermitage Road, from Grove Lane to Egerton Road.
- (b) Surface water sewer through the town's yard relaid.
- (c) Surface water sewer, South Downs Road, relaid.

"The methods employed at the Council's Sewage Farm are as follows :—

- (a) By septic tank, followed by bacteria beds and broad irrigation.
- (b) By settling tanks and broad irrigation.

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"The result of the year's working has been more satisfactory than that of the previous year. The samples of effluents taken in all cases satisfied the requirements of the Irwell and Mersey Joint Board and complaints relative to odorous emanations have been very few. As you are aware the question of removal of the sewage farm, or for structural alteration, remains *in statu quo*, but improvements have been made during the year and these, no doubt, have contributed to the better working results. These improvements comprise the following. The renovation of the underdraining throughout, and the completion of the work of the sub-division of the land into bays and the laying of carriers and distributing pipes. The turning over of the surface of the land and the seeding with grass and formation of embankments along the Bollin side. At the main outfall four temporary filters have been constructed, together with three sludge drying pits and one final drying area. The old measuring and valve chambers have been converted into additional detritus chambers, the storm water overflow has been diverted from the effluent drain and the manhole on the main under drain has been rebuilt. On the Ashley Heath section the septic tank has been cleaned out, its use discontinued and a detritus tank and filter have been substituted. One of the bacteria beds has been cleansed and the distribution channel has been re-arranged. A sludge pit has also been constructed.

"With regard to the vital question of removal or alteration you are aware that reports have during the year been sought and obtained from Dr. Fowler and Mr. Midgley Taylor, and so far as possible information obtained as to the value of the 'Emseher' tank system. Latterly the solution of the problem has been rendered more difficult by the introduction of Dr. Fowler's system of 'blowing' for the treatment of crude sewage and though this is still somewhat 'experimental' and though I should like to see the matter settled, yet in view of what is being done at the present moment at the Manchester and Salford Sewage Works I feel the Council would be illadvised if they did more than 'mark time' at this juncture. In the meantime, short of costly alteration, everything should be done, of course, to maintain the present improved conditions at the Sewage Works."

HANDFORTH URBAN DISTRICT.—"There are no main drains. A sewage scheme is under consideration."

HAZEL GROVE AND BRAMHALL URBAN DISTRICT.—"Sewage disposal is effected in the Bramhall drainage area by a bacteriological system in Tenement Lane, and by a chemical precipitation

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works in Offerton for the Hazel Grove drainage area, both of which are in good order, and the samples taken during the year have been classed as satisfactory."

HOOLE URBAN DISTRICT.—"The sewers of the district empty into the Chester system and have been regularly flushed. The Consulting Surveyor reports:—The improved sewage scheme was carried out by the contractor (Mr. W. H. Owen), but so negligently that a portion of the work collapsed in Charles Street. The Council have taken steps to have the defective portion made good and have also given direction for the roads and streets damaged during the works to be put in order."

HOLLINGWORTH URBAN DISTRICT.—"The district is well equipped with a good main sewer, which has satisfactory fall and flush. House drains and sewers are nearly all connected with the main sewer. There are now only three cesspools in use, which are regularly inspected and emptied. The farmsteads on the hillsides have a satisfactory system of sewers of their own and their drains mostly empty into cesspools not in close proximity to any building. These cesspools are periodically cleaned by the farmers themselves and the contents utilised as manure on the land.

"By means of a well-arranged water carriage system, the sewage is conveyed to the disposal works, which are situated down the river, well away from all dwelling-houses. The treatment at the outfall works is by tanks, filters and land and I have nothing unsatisfactory to report for the year 1914. The Inspectors of the Mersey and Irwell Joint Committee took eight samples during the year and good effluents were reported in each case, with one exception."

HOYLAKE AND WEST KIRBY URBAN DISTRICT.—"The Engineer has kindly supplied me with the following report, which provides succinctly a description of the sewers, the difficulties met with, the methods of flushing and his recommendations for improvements:—

"Dee Lane Outfall.—There is considerable difficulty in keeping this outfall open owing to the constant encroachment of sand. The Council have this problem under consideration. All the main sewers in the district usually run full bore and are therefore self-cleansing. To flush these with fresh water is worse than throwing money away, as it only tends to prevent the free flow of the tributary sewers without in any way assisting the main sewer.

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Efficiency and economy is best obtained by flushing those sewers which from lack of gradient or flow are not self-cleansing and saving water on sewers which from observation and levels are found to be self-cleansing. Certain sewers are flushed by impounding sea water and other sewers have such a poor gradient—or no gradient at all—that flushing has no effect and the only means of dealing with them is to rod them. There are still certain sewers of deposit in the Kington Road district, West Kirby, which, when flushed, only cause flooding in the adjoining yards. The diversion of the Lang Lane district sewage from across Lear's land into the new main sewer down Riversdale Road has stopped all flooding in the Grange Road, Dee Lane and Milton Road areas. Considerable economy in the accounts for water has been achieved by putting all water used through a meter and the adoption of a system of flushing, but further saving could be effected by using sea water, which might be raised by an electric motor pump fixed at the new baths and conveyed by a motor water-cart, both for street watering and for sewer flushing. The new pumping plant in Stanley Road has done away with three flushing tanks and is working economically.

“The Council flush the drains of about 50 houses at a charge of 2s. 6d. each visit to cover cost of water and labour, but naturally it would not be possible to flush the drains of all houses without increasing the rates.”

KNUTSFORD URBAN DISTRICT.—Mr. Marshall reports :—“The sewerage system of the town has been examined periodically and all deposits and foreign matter have been removed. All dead-ends have been flushed and generally speaking the sewers have been kept as free as possible from silt and deposit. A few old catchpits have been abolished and new stoneware trapped gullies and heavy cast-iron gates and frames have been fixed in lieu thereof. The following new sewers have been laid :—One hundred and forty-six yards lineal 9-inch stoneware pipe sewer, with man-hole and lamp-hole, Cranford Avenue extension. One hundred and twenty-eight yards lineal 6-inch stoneware pipe sewer, with man-hole and lamp-hole, Norbury Terrace and Mobberley Road. A short length of old sewer in Tatton Street was taken up and relayed with 9-inch stoneware pipes for a distance of 14 yards. A new lamp-hole was constructed at the head of the sewer in Mobberley Road. The amount of £36 9s. 5d. has been received from sundry persons outside the urban area in payment for the reception and disposal of sewage in the Council's system. The sewage disposal works have again given remarkably good results,

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with a fairly low quantity of alumino-ferric used. It is very satisfactory to again stand so high in the lists of the Mersey and Irwell Joint Rivers' Board on effluents taken from various sewage disposal works in their area. Below I append a summary of the reports received on the samples of effluents discharged from the sewage works:—(1) April 25th, 2nd out of 31 in list; (2) July 22nd, 4th out of 56 in list; both classified as 'good' effluents. The cost of working the sewage disposal works is as follows:—Wages, £100 17s. 9d.; alumino-ferric, £121 19s. 0d.; motive power and sundries, £8 12s. 9d.; total, £231 9s. 6d."

LYMM URBAN DISTRICT.—"The effluent from the sewage farm, as analysed by the Irwell and Mersey Joint Committee, is reported 'good.' The new sewerage scheme is now completed and in use."

MARPLE URBAN DISTRICT.—The Inspector remarks:—"The River Goyt receives the waste from two or three works higher up than Marple and in a few instances is contaminated by overflow from some cesspools. We have this year applied for powers to join up with the Mellor and Ludworth Sewerage Scheme, which will greatly improve the river. Our sewage and drainage are in a good state and we have added a filter bed to the sewage works, but there is still a shortage of room. The flushing of the sewers is still not quite satisfactory.

"The works for the purification of the sewage (that is, sewage up to three times dry weather flow), consist of a screening chamber of 6,000 gallons capacity, septic tanks of 95,000 gallons capacity, primary filters of 600 yards superficial area, secondary filters of 500 yards superficial area and three acres of land. The works for dealing with storm water above three times dry weather flow consist of two tanks having a total capacity of 80,000 gallons. The amount of sewage flowing to the works in dry weather is 130,000 gallons per day, which flow will increase correspondingly with the erection of new buildings and the conversion of privies into water-closets. Your Committee are now constructing an additional filter of about 900 yards in area, which will be a very useful addition to the works.

"The matter of the Low Marple sewage has received the serious consideration of your Committee, who have now arranged for the Low Marple area to be included in the drainage area of the Ludworth and Mellor Joint Sewerage Board. This arrangement will enable the Council to construct sewers for the drainage of the

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above area and to discharge the sewage into the Joint Board's sewers at Marple Bridge. Plans and estimates for the construction of the necessary sewers have been prepared, application for the sanction of the Local Government Board has been made and the enquiry has been held."

NANTWICH URBAN DISTRICT.—"Following the acquisition of the extra land for sewage disposal works, gaugings were taken on the various sewers to ascertain the exact volume of sewage to be dealt with and the results showed a very much larger volume than it was originally proposed to treat. Under these circumstances it was found necessary to considerably enlarge the proposed works and new plans, sections, details and estimates had to be prepared. These were duly transmitted to the Local Government Board and eventually an Inquiry was held on the 3rd of November, 1914. Sanction for the amount applied for to be borrowed, viz.:—£17,000—is awaited."

NESTON AND PARKGATE URBAN DISTRICT.—"It can legitimately be claimed that the area is well sewered, for the Council long ago recognised this prime necessity for the healthy development of the area under their control. Old sewers have been reconstructed and new ones made in accordance with the growth of the townships. Much public money has been expended in the sewerage schemes, but the full benefit of this expenditure is far from realised. There is little disposition on the part of owners voluntarily to adopt the water carriage system, although one would from ordinary reasoning have concluded that with the abundant water supply available and payment having been exacted for the sewers, that the small additional expense necessary to complete the work would have been forthcoming. Automatic and horse-flushing tanks are in regular use throughout the system. The bacteria beds in which the sewage from Great and Little Neston is treated are in good order and do their work efficiently. A piped drain conducts the effluent from the beds to the River Dee and a sample taken at the outfall when analysed was reported as 'fairly good' in March, 1913.

"Parkgate sewage is discharged into tidal waters and the sewer is flushed periodically by means of a private swimming bath, which discharges 18,000 gallons of water, obtained from an artesian well, along a six-inch pipe into it. The Council have been under an obligation to extend the outfall to a deep gutter in the River Dee, but it was found that this gutter was rapidly approaching the outfall and when a representation to this effect was made to

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the Local Government Board, whose Inspector had advised the extension, permission was given to defer any work pending observations on the local conditions. Close attention is paid to the outfall and it is over five years since any complaint of nuisance arising from it has been received. The sewer is kept well flushed and the flush from the bath referred to above is discharged at ebb tide. On August 26th, 1914, Major Norton, R.E., an Inspector from the Local Government Board, visited the sewer outlets on the shore at Parkgate, Manorial Road and Moorside and intimated that he saw no reason to complain."

NORTHWICH URBAN DISTRICT.—"The new sewerage system appears to be working satisfactorily. At the outset the effluent at Winnington was not satisfactory, but some additions recommended by the Engineer have given good results. The district is now supplied with a system of sewers draining into the outfall works except small portions where subsidence renders connection impracticable. No complaints have been received during the year."

RUNCORN URBAN DISTRICT.—"The district is efficiently drained and sewered; most of the sewers empty into one large intercepting sewer which dips under the Manchester Ship Canal at No-Man's Land and discharges into the Mersey Estuary; the remainder, draining some of the outside parts of the town, also dips under the Canal some distance to the west and discharges similarly into the Mersey Estuary."

SALE URBAN DISTRICT.—"The sewage works have carried out the various processes of chemical precipitation and filtration, etc., in a very satisfactory manner, reflecting great credit on the resident engineer and his staff. There have been no complaints made as to any smell or nuisance arising from the sewage works."

SANDBACH URBAN DISTRICT.—"The sewerage system is in very good working order and the effluent is a very good one. The system is as follows:—All the sewers of the town have been connected with the new system. One part has a small system of its own and another that lies very low has been provided with a small pumping station of its own where the sewage is lifted by a water motor into one of the higher sewers. Storm overflows have been placed at various points. The outfall works are designed to deal with the sewage from 4,600 persons at 20 gallons per head, or 92,000 gallons per day dry weather flow. The works

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consist of grit tanks, septic tanks, continuous filter beds, storm beds and three acres of land for final treatment. The sewage is delivered at the works in two sewers which join in an open channel and pass by an open trough 12 feet long, arranged so as to overflow when six times the dry weather flow is passing. From here, flowing through two open channels with weirs 20 feet long, arranged to divide the sewage again, passing three times the dry weather flow to the tanks and the same quantity to the storm water bed. There are two grit tanks, each 10 feet square by six feet deep, with a capacity of 7,500 gallons, and two septic tanks, each 41 feet by 20 feet by nine feet deep, with a capacity of 92,250 gallons. The grit tanks are fitted with chain pumps to remove the sludge which is pumped to a small lagoon on low ground. There are two filters, 70 feet diameter, six feet deep, with a total contents of 1,710 cubic yards, upon which the sewage is distributed by Fiddian Distributors and from here the filtrate is distributed to the three acres of land by an open carrier. The filters are filled with tap clinkers, broken up to varying gauge from two inches at the bottom to half inch at top. The land has been drained to an average depth of four feet. The storm water bed consists of 670 cubic yards of broken clinkers, the water being distributed by half pipe channels. A few houses in the outlying districts are supplied with cesspools of a suitable character and are emptied and cleaned out as required."

TARPORLEY URBAN DISTRICT.—"There have been no extensions of the sewers in Tarporley Urban District during 1914. Some parts of the villages are still without a proper system of sewers, having tanks and cesspools which they empty on to their gardens and land. Nearly all the cottages in Tarporley have been provided with water-closets. The Tarporley sewage is disposed of by means of a precipitation tank, sludge beds and land treatment. These sewage works are in good condition. There have been no complaints and no alterations have taken place at the disposal works during 1914."

WILMSLOW URBAN DISTRICT.—"The sewage is treated by (a) precipitation tanks and land, (b) broad irrigation. No complaints were made during the year. A few parts of the rural area (Morley and The Hough) are without a proper sewerage system. No new works were carried out during the year."

WINSFORD URBAN DISTRICT.—"The houses in Station Road, about 160 in number, have now been connected to the new sewer and two six-inch ventshafts erected, besides three other ventshafts on

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other sewers. The beneficial effect of these ventshafts has been so marked, that some more will be fixed without delay on the sewers in Over."

YEARDSLEY - CUM - WHALEY URBAN DISTRICT. — "The new sewage works are complete, but the unfortunate influx of water into the sewer renders it impossible for any connections to be made. When this defect has been remedied it is to be hoped that the Council will take immediate steps to have the work of connecting up the various premises in the district with the sewer completed."

BUCKLOW RURAL DISTRICT. — Mr. Metcalfe says :—

"Fifty-eight houses were completely re-drained during the year and amendments carried out to 67 others. In all cases the water test was applied and the drains proved to be sound and tight before being covered in. Five hundred and sixteen lengths of drains were tested in this way.

"Eighty-three privy-closets were abolished and 83 water-closets substituted. Dust-bins were provided to each house in lieu of the 52 middens actually abolished. Many dry ash-pits were also abolished and dust-bins substituted.

"The work under this heading has been considerably retarded during the year owing to the War. Owners are reluctant to spend money on improvements of this kind when they realise that it may be required for other important necessities before this terrible crisis is passed.

"With regard to the sewage schemes in several townships, existing or prospective, the report for 1914 is as follows :—

(a). *Timperley*.—The sewage has been treated at the Dark Lane outfall in the usual manner. The Special Committee realises the necessity for improvement and is now considering the possibility of enlarging the old site, or acquiring a new one.

(b). *Northenden*.—Tenders for the execution of the new works have been invited, but the amounts largely exceed the original estimates, owing to disturbance of prices by the War ; and at the moment this difficulty has not been overcome.

(c). *Dunham Massey*.—Satisfactory.

(d). *Baguley, Peover Superior, Styal, Northen Etchells, Partington, Mobberley*.—In all these townships public sewers

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for parts of the same would undoubtedly be a great benefit to the houses served, and are desirable in the interests of the public health. This is a 'counsel of perfection' and must not be taken as indicating anything more than that, or as meaning that there is any actual need of immediate action."

"The Special Committee has fully considered each case, with the aid of actual plans and estimates and has found it inadvisable at present to embark upon a scheme for any of these places. The difficulties vary in the various schemes; but always include one which weighs heavily in the adverse scale, viz.: the excessive cost of laying long lengths of outfall sewer and erecting disposal works, for comparatively small areas or populations which are themselves only a portion of the area or population on which the cost would fall, in townships whose rateable value is small. Thus in the townships named a rate (for special expenses) of one penny in the pound produces approximately:—

				£
Mobberley	...	...	...	38
Baguley	..	...	...	34
Styal	..	...	...	25
Northern Etchells	...	...	...	24
Peover Superior	...	...	...	20
Partington	...	...	...	16

and it would thus probably mean a rate of from sixpence to two shillings to meet the annual charges of the loan which would be necessary for capital expenditure and this does not include the permanent charges for working and maintenance.

"Mr. McKenzie reports as follows:—

"*Dark Lane Tanks, Timperley.*—The Sewage Works Committee have had these works under careful consideration with a view to having some much needed improvements carried out. The Committee visited the works on September 25th, 1914. These works have been in operation since 1879 and with the increase in population have become unable to deal adequately with the present flow. During the year two complaints were received of the foul condition of Sinderland Brook and numerous inspections were made near Faulkner's Bridge. There is another sewage works discharging into this same stream and several storm overflows.

"*Effluents.*—The three sewage disposal works of Dunham, Timperley and Northenden continue in operation. A sample

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of effluent, taken by the Mersey and Irwell Joint Committee on September 2nd last from Northenden works, was condemned. Owing to a continued spell of dry weather the ground had become dry and full of cracks, enabling the sewage to pass through too quickly. With the completion of the new works, whenever that may be effected, a great improvement may be confidently hoped for."

CHESTER RURAL DISTRICT.—"The following new works of sewerage have been carried out during 1914:—

- 1.—An additional length, about 300 yards, of new sewer in Plough Lane, Christleton.
- 2.—Ditches have been cleaned at Great and Little Saughall, Littleton, Old Quarry, Christleton and Elton Green; at the latter catch pits have been provided.
- 3.—At Little Stanney a new length of drainage has been laid to collect several adjoining properties, which is a great improvement.
- 4.—Bache, Upton, Newton, Christleton and Great Boughton sewers have regular attention.

"Mickle Trafford is still without a satisfactory system of sewerage and has been before you for further consideration. The City of Chester sewers dispose of the sewage from Christleton, Great Boughton, Newton, Upton and the Bache. Eccleston, Pulford, Poulton and part of Dodleston are treated by the Eaton Estate. A filter bed at Balderton treats a good portion of the Dodleston sewerage, as well as Balderton. A similar filter bed has been provided for Poulton. There have been no complaints during 1914 as to the disposal works in your district."

CONGLETON RURAL DISTRICT.—"Mow Bank and Thurlwood want a system of drainage; at Elworth the outfall works are not giving a good effluent. The irrigation grounds at the other places are working on the whole satisfactory."

DISLEY RURAL DISTRICT.—"For the greater part of Disley the drainage and sewerage is satisfactory. The sewer along the Jackson Edge Road has been extended a considerable distance. The contract for the construction of sewers for the Newtown portion of the district is let. The Furness Vale

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sewers are completed but not yet connected. I consider the establishment of a proper system of sewers for these two districts is very essential. Objectionable privy middens should then be dispensed with and the pollution of streams will cease. Methods of disposal of sewage: settling tanks and land filtration."

MACCLESFIELD RURAL DISTRICT.—"The construction of sewers at Taxal was completed. They are not, however, being used yet, as the Joint Board are not yet prepared to receive the sewage into their main outfall sewer. Additional sewers were also laid at Woodford."

The Surveyor remarks:—"At Taxal the new sewers in Goyt Road and Macclesfield Road, a total length of 913 yards, were completed. As the Joint Sewerage Board are not yet prepared to receive sewage from this area, steps have not yet been taken to have the houses drained into the sewers. The Woodford sewers were extended 236 yards to meet the requirements of houses about to be built in Wilmslow Road. At Poynton 566 houses are now drained to main sewers. A satisfactory report was received with respect to each sample of final effluent collected at the outfall works by the staff of the Mersey and Irwell Joint Committee. The samples, which were examined on the Council's behalf, were also satisfactory. In Woodford seven houses were newly drained into sewers which discharge by agreement into the sewers of the Hazel Grove and Bramhall Urban District, making 18 in all. In Upton one house was newly drained into a sewer which discharges into the Macclesfield Borough sewers. There are now so drained:

In Butley	..	...	50 houses.
In Prestbury	...	...	55 „
In Tytherington	...	...	27 „
In Upton	...	...	20 „

MALPAS RURAL DISTRICT.—"No new works of sewerage have been carried out during 1914. The sewage for Malpas town is disposed of by bacteriological treatment. There are three outfalls, one at Wells Lane, one at Whitchurch Road and one at Wrexham Road, each consisting of a sedimentation tank which empties on to three lots of filter beds, arranged on two tiers. No alterations or extensions have taken place in the disposal works during 1914.

"None of the district, except Malpas town, has any system of sewers. In the small villages most of the houses have

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separate cesspools. Isolated cottages run their sewage into cesspools or into the nearest water-course. Most of the farms deposit their sewage on to the land. A farm at Chorlton has had a Dibdin's slate bed installed for the treatment of its sewage."

NANTWICH RURAL DISTRICT.—The Surveyor remarks:—"The laying of the sewers in Willaston and Wistaston, which has been in progress during the year, has now been completed and the house-drains will shortly be connected up to the same and the works put in operation. Tenders were also received during the year for the Haslington sewerage works, the lowest tender being £8,469; but as the contractor could not be induced to proceed with the work at this price, the tender of Messrs. Doloughan & Mulcaster of £10,356 was accepted and the work will shortly be commenced. The extension of the sewer in London Road, Willaston, has been proceeded with, but is not yet quite finished."

The Sanitary Inspector remarks as follows:—"The sewer in London Road, Willaston, is being extended as far as Willaston School. When it has been completed the drains from the houses on the line of the sewer and also from the school will be connected to it. The nuisance so frequently complained of in years past arising from the sewage contact bed in the school grounds will thus be abated and the ground of complaint removed. By the time this report appears in print the laying of the sewers in the Willaston and Wistaston townships will have been completed. The work of connecting the house drains to the sewers will be immediately proceeded with. The contract for the sewerage of the village of Haslington has been let and the work of constructing the filter beds and the laying of the sewers will be proceeded with at an early date. Your Council will, at no distant date, be compelled to take into serious consideration the sewerage of the village of Shavington. Complaints are frequently being made concerning the nuisances arising from sewage polluted ditches and cesspools. The ditches and pit in Broad Lane, Stapeley, continue to be offensive. I have pointed out in previous reports that they will remain so until this part of your district is properly sewered. There appears to be no hope of effectually abating these nuisances until the Nantwich Urban District Council has completed its sewage scheme."

NORTHWICH RURAL DISTRICT.—"During the year a new 12 inch sewer has been laid in Middlewich Road, Rudheath,

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9 inch to 6 inch sewer in Smithy Fold, Barnton and a 6 inch sewer in Senna Lane, Comberbach. Six samples of sewage effluent have been analysed during the year. A second sewer attendant has been appointed to supervise and flush sewers and the Winnington system let by contract for monthly flushing and examination. The acquisition of a sewer flushing tank on wheels has been sanctioned. Reference to the Surveyor's report shows the reforms done and suggested in the various sewerage systems in the district."

The Surveyor remarks:—"A new sewer has been constructed at Barnton in substitution for an existing defective sewer in Smithy Fold. Four new 6 inch steel tube ventilating shafts 30 feet high have been fixed on the sewerage system, one 3 inch shaft has been refixed and another 4 inch shaft remains to be fixed. The Webb lamp system of ventilation has been abolished on account of excessive cost of maintenance. The arms of the four sprinklers at the Riverside works have been renewed and in order to facilitate the cleansing of the detritus tank, a by-pass has been fixed and thereby an existing and previously useless tank has been made to serve a useful purpose. The Council have had under consideration the reports of the County Analyst and the County Medical Officer of Health on the effluent from the works stating that it contains too much suspended matter and have decided to add humus tanks in order to arrest the suspended matter referred to, but that as the times are so serious and money so much needed for other purposes of greater importance that the proposed works be deferred for the present.' The Council have also passed the same resolution with regard to the Gunnersclough outfall works where the sewage is dealt with on one filter and in reference to the effluent from which the County Analyst's report states 'that more complete oxidation is required and the suspended matter removing.' The trouble has arisen during the year through the addition of sewage from about 70 new dwelling-houses which drain to this outfall and the filter not having been designed for this abnormal increase. The Council have therefore decided to provide an additional filter and a humus tank as soon as circumstances will permit.

"A new 6 inch sewer has been laid along Senna Lane, Comberbach, for the benefit of one new dwelling-house and several existing cottages which were previously served by a faulty drain.

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“Six buried manholes on the outfall sewer at Davenham have been brought to the surface and fitted with access covers.

“The work of remodelling the works and new sewerage schemes at Hartford Beech and Heyeswood have not been proceeded with owing to the difficulty of settling details with the London and North Western Railway Co. There are still a few minor details to be arranged, but as it is not considered advisable to spend money on such works as these at the present time, the work has been deferred temporarily.

“The Council have had under consideration complaints made by the County Council as to the nature of the effluent from the works at Lostock Gralam which is stated to be unsatisfactory. In consequence of this complaint a Committee met on the site and made certain recommendations which were adopted by the Council and which are briefly as follows:

- (1) That the detritus tank be remodelled and all sewage screened.
- (2) That the septic tank accommodation be enlarged.
- (3) That a storm water tank be provided.
- (4) That sludge drying lagoons be provided with under drains and pump.
- (5) That additional land for the provision of filters be purchased and the tank effluent conveyed thereto.
- (6) That two large and two small percolating filters be constructed and also a humus tank.

“The Committee’s report however concludes with the suggestion ‘that the work be not proceeded with at present’ for reasons which are obvious. The Council adopted the suggestion.

“Owing to certain dwelling-houses in Middlewich Road, Rudheath, draining into a stream and causing pollution, the Council have laid a new sewer for a distance of 90 lineal yards and so abolished an old standing nuisance. The Council have approved a scheme of sewerage for the Broken Cross district and the work is now in the Contractor’s hands for laying the following sewers:—

367 lineal yards 12 inch diameter.					
266	„	„	9	„	„
140	„	„	6	„	„

“By this new system an existing tank to which about 14 houses drain will be abolished, also a cesspool to which six houses drain. The primary cause of this scheme is the desire

SEWERAGE AND SEWAGE DISPOSAL.

of Messrs. Brunner, Mond & Co. to erect about 40 dwelling-houses near to Broken Cross bridge and who have generously agreed to contribute a sum of £294 towards an estimated cost of £400. Thus the scheme has been made financially practicable without recourse to a loan which would otherwise have been necessary. Plans for 18 of the new houses referred to have been approved by the Council.

“A new 9 inch effluent sewer has been laid at the Wincham sewer outfall for a distance of 90 lineal yards. Owing to subsidence the joint outfall sewer in Forge Lane was broken and given a back fall of some 2 feet 6 inches. By cutting through a bank a satisfactory gradient was obtained and the sewer made good.”

RUNCORN RURAL DISTRICT.—“Sewerage schemes have been laid down in the following portions of your district, viz.:—

1. Helsby, with sewage disposal works; outfall to river.
2. Frodsham and Frodsham Lordship; outfall to river.
3. Stockton Heath; outfall to river.
4. Walton Inferior and Superior; outfall to river.
5. Daresbury; with small sewage disposal works; outfall reaches river.
6. Halton; outfall to river.
7. Weston and Weston Point; outfall to river.
8. Moore, with sewage disposal works; outfall to river.
9. For Grappenhall, Thelwall and Latchford Without, a combined scheme is at present in course of negotiation and arrangement, which, however, for the time being, are in abeyance.

“It does not appear necessary to undertake further sewerage works in your district at present.

“The suggested sewerage scheme for Clifton appears to be in abeyance, if not abandoned. This is to be regretted, as the condition of this township leaves much to be desired in the way of improvements, especially with regard to the privy accommodation of the cottage property.

“Connections of property are now being made to the new sewerage extension in Frodsham Lordship. I am also pleased to note that the water carriage system has been adopted to cottages at Pinmill Brow, Overton.

SEWERAGE AND SEWAGE DISPOSAL.

"I understand that the existing sewers in Walton Inferior have been prepared in advance, to receive the increased sewage which will be provided by the adoption of the water carriage system, under the Housing and Town Planning inspection which has been carried out in 1914; I would recommend that this work (of conversions to water-carriage) be carried out at as early a date as possible."

TARVIN RURAL DISTRICT.—"No new works of sewerage have been carried out in your district during 1914. Farn-don, Tattenhall and Churton are still without a proper system of sewerage and are still before you for consideration. The sewage is disposed of in most cases into the nearest water-course in a crude state. In some cases it is filtered before entering the stream; in other cases it is deposited on the land. There have been no complaints during 1914 as to the disposal of sewage. No alterations or extensions have taken place in disposal works during 1914."

TINTWISTLE RURAL DISTRICT.—"After twelve months of working the sewage works at Tintwistle are working well. Samples of the effluent have been twice taken by the River Mersey and Irwell Joint Committee. They were reported as good and placed 5th and 8th on the lists. Unfortunately the scheme for the treatment of Matley sewage by the Stalybridge and Dukinfield Corporations has fallen through. Consequently the Surveyor is now preparing a scheme for the treatment of the sewage at Bury-me-Wick. In the meantime the filter bed at Matley has been cleaned out, new clinkers replacing the old ones and everything possible is being done to prevent contamination of the streams."

The Inspector remarks:—"The sewage disposal works for Tintwistle have been working since August, 1913 and so far are satisfactory. One or two minor alterations have been carried out which have improved them. The amount of sludge produced is very large for the size of the district. The method of treatment is by detritus tanks, open septic tanks, bacteria beds and humus tanks. The sewage is distributed by revolving arms to the bacteria beds. Two samples have been taken during the year by the River Mersey and Irwell Joint Committee. They were both reported as good effluents, being placed fifth and eighth on the lists respectively. During the year part of the filter bed at Matley was renewed with clinkers. Several small lengths of sewers in the district have been repaired or relayed and are now working satisfactorily."

SEWERAGE AND SEWAGE DISPOSAL.

WIRRAL RURAL DISTRICT.—“Sewage from the villages of Prenton, Noctorum, Upton, Bidston and Moreton passes through the Fender Valley outfall sewer. Sewage from Willaston, Gayton, Childer Thornton, Hooton and part of Eastham is treated in septic tanks and bacteria beds. Heswall, part of Eastham, Great Sutton, Little Sutton, Caldy, Poulton through Lower Bebington sewers and Grange through Hoylake sewers, discharge sewage directly into tidal waters.

“The Thornton Hough sewerage works are completed and working satisfactorily.

“The Caldy sewerage works are completed and provide for a population of about 700. There is a storage tank which is emptied automatically on the ebb tide and has a capacity equal to twice the average dry weather flow on the population now provided for.

“The Eastham sewerage works have been used for the treatment of a greater quantity of sewage than they were intended to deal with when first constructed, owing to the rapid increase in the population of the villages concerned. The result has been that the effluents were unsatisfactory and a scheme for their re-construction has been sanctioned by the Local Government Board, for which tenders have already been invited.

“The Surveyor supplies the following summary of work done in connection with drains and sewerage:—

One length of sewer construction on Telegraph Road.
Heswall.

New relief sewer at Ford Road, Upton.

260 yards of ditches piped and partially filled up at
Pasture Road, Moreton.

100 yards of ditch piped and filled up opposite ‘The
Grange,’ Pensby Road, Heswall.

250 yards of ditch piped and filled up at the rear of
houses on Neston Road, Willaston.

“The Local Government Board have approved of the plans for the laying of the new sewer in the parishes of Willaston and Eastham. Also approved of plans for the re-construction of the sewage disposal works at Eastham Rake, for the parishes of Willaston, Childer Thornton, Eastham and Hooton.”

Section X.—Rivers Pollution.

Your Rivers Pollution Committee has been persistent in its endeavours to secure greater purity of the rivers under its jurisdiction. But, in many cases, work has been handicapped seriously by the limitations of the Rivers Pollution Acts. The principal offenders and those most difficult to deal with satisfactorily are those who pollute the waters of the Englesea and Valley brooks (tributaries of the River Weaver), the River Wheelock and the River Dane. The pollution of the River Dee requires action, though this is caused not so much by default in Cheshire as by serious default and apparent indifference on the part of Denbighshire. Where the water supply of a large community is concerned, as is the case here, this question assumes a most serious aspect.

I have recently addressed a communication to the County Medical Officer of Health for Denbighshire on this important matter.

Much, however, has been done by the exercise of tact and patience, but there are certain instances where the time has undoubtedly come for much more drastic action and I do not anticipate any hesitation on the part of your Council when this matter has to be finally faced.

I append a few extracts from the Annual Reports of the Medical Officers of Health; many of these officers do not concern themselves with the matter, as it is largely outside their jurisdiction. *It would very much assist me in my work if they would keep me regularly acquainted with any sources of pollution arising in their respective districts.*

CONGLETON MUNICIPAL BOROUGH.—“There is not any pollution from the public sewage works. The River Dane is polluted by the effluent from the Silversprings Bleach Works in Buglawton, by the discharge of the water closets of two Congleton factories into it and slightly by sewage from some of the outlying and distant parts of the district.”

DUKINFIELD MUNICIPAL BOROUGH.—“The River Tame separates the two towns of Dukinfield and Ashton-under-Lyne. No pollution enters the river directly from works or otherwise in the town, as the sewage is first of all treated at Bradley Hurst Farm and filtered before being discharged into the river.”

ALSAGER URBAN DISTRICT.—“Since the opening of the New Sewage Works the possibility of the pollution of the stream into which the effluent flows has been greatly reduced and the danger of pollution will diminish to a minimum when the plant is in full working order. Contamination of streams from outside sources is being dealt with by the Staffordshire and Cheshire County Councils.”

ASHTON-UPON-MERSEY URBAN DISTRICT.—“The River Mersey has been fairly full of water, the same may be said of the brooks in the locality; there has been little or no smell from them. There have been several complaints of bad smells from the north-east district; this has been the subject of enquiry by the Local Government Board.”

LOWER BEBINGTON URBAN DISTRICT.—“Several streams pass through the district, the waters of which have previously received sewage from houses and effluents from sewage purification works in the neighbouring areas.”

BOLLINGTON URBAN DISTRICT.—“The purchase of the flume and its consequent abolition has been of great benefit from a sanitary point of view. The absence of the old familiar stench along the main road, beside which it had its course, has been a marked feature during the summer. There have been no complaints of smell arising from the river, but one cannot say that there is much improvement in the light in which it is regarded by the inhabitants of the houses on its banks. These still seem to regard it as a place in which to shoot all manner of rubbish. All kinds of things still find their way into it, but the difficulty is that as no one ever does such a thing as throw them in, it is impossible to make an example of an offender.”

BROMBOROUGH URBAN DISTRICT.—“Several small streams which have traversed the greater part of Wirral pass into the district to fall into the Mersey at Bromborough Pool. These streams are polluted by house drainage and by effluents from sewage works at various points in their course.”

CHEADLE AND GATLEY.—“No complaints were received during the summer months about the smell arising from any of the streams. Your Inspector made frequent observations. In November a complaint was received about the smell arising from a stream, especially after a storm. Both I and your Inspector made a thorough inspection and found the cause to be some trade refuse which was draining into the brook, not sewage contamination. Steps were immediately taken to have this nuisance abated.”

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COMPSTALL URBAN DISTRICT.—“The River Etherow, which separates the district from the Glossop Rural District is contaminated with the refuse from works higher up the river and occasionally is malodorous, but there has been no complaint owing to the large amount of rainfall.”

ELLESMERE PORT AND WHITBY URBAN DISTRICT.—“The River Gowy forms part of the Eastern boundary of the district and its waters are polluted by house drainage.”

HANDFORTH URBAN DISTRICT.—“There is one river and two small brooks. The river is often polluted from the dye works higher up the stream and the brooks are full of sewage material ”

HOLLINGWORTH URBAN DISTRICT.—“The streams have their sources in the more elevated parts of the district and their course is mostly derived, in the first instance, by spring water welling up from rock. They are later fed by surface water and in nearly every case reach the river with little or no pollution. The River Etherow is inspected by the Mersey and Irwell Joint Rivers' Pollution Committee and their Inspectors continue to give Hollingworth a clean report. There are no private sewage disposal works in Hollingworth. As regarded effluents from manufacturing concerns, I can only refer, as in my last report, to the River Etherow Bleaching Company, who have their own settling tanks, which are passed by the Joint Committee's Inspectors.”

TARPORLEY URBAN DISTRICT.—“The streams are fairly free from pollution, with the exception of the brooks in the townships of Eaton and Utkinton, which are polluted by house drainage and farm sewage. There is no manufacturing waste or effluents entering them.”

WILMSLOW URBAN DISTRICT.—“No complaints of pollution were made during the year.”

BUCKLOW RURAL DISTRICT.—Mr. Metcalfe says :—

“Many inspections have been made of the rivers in the district as in previous years and several samples were taken, four of which were submitted for analysis. With regard to Sinderland Brook, I can only repeat what I said last year, that it is very foul and the bed of the river requires cleaning out. This has become a public health matter and should be dealt with as such. Joint action should be taken by this Council and the Altrincham Urban District Council.”

CHESTER RURAL DISTRICT.—“In the Chester Rural District some of the streams are polluted or are likely to be polluted. At Great Saughall the stream is polluted by the house drainage of the whole village. A second sewage scheme has been prepared for Great Saughall and has been accepted. House drainage pollutes the River Gowey at Mickle Trafford and has been before you for consideration and some cottages pollute the brook at Abbots Mead. No manufacturing waste or effluents cause pollution.”

CONGLETON RURAL DISTRICT.—“The pollution from Birchenwood Colliery still continues, although the Cheshire County Council have it in hand and are trying to find a means of stopping it. The Birchenwood Company are doing their best to help the farmers on whom the loss is heaviest, but I hope the pollution will be stopped soon.”

DISLEY RURAL DISTRICT.—“The rivers and streams are polluted by trade effluents. Pollution is minimised by the supervision of the Mersey and Irwell Joint Committee and by the Rivers Inspector of the Cheshire County Council. The undrained houses in the Newtown and Furness Vale portions of the district are a source of pollution.”

MALPAS RURAL DISTRICT.—“In the Malpas Rural District there seems to be little pollution of the streams except from house and farm drainage. The farm drainage and sewage is nearly all dealt with on the land. No manufacturing waste or effluents cause pollution.”

RUNCORN RURAL DISTRICT.—“No systematic inspection in reference to this matter has been carried out during 1914. The whole question was exhaustively inquired into several years ago, when Dr. Francis Vacher (the County Medical Officer at that time) accompanied your Inspector and myself over the entire area where streams are found and the result of a year's work was embodied in a full Report, containing all the known facts of rivers pollution; since then, considerable improvements have been made and I think very little additional pollution has been caused. Where extensive conversions of privies to water-closets has been carried out, there is a system of sewage treatment interposed before the river or stream is reached, as at Helsby, &c. and in the New Moore Sewerage Scheme sewage treatment is being provided. The Township of Moore at present contributes a degree of pollution to streams. Since my former Report a scheme has been adopted and is at present in course of construction; the greater portion has

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been completed. Finally, I may assert that the total amount of pollution of streams in your district is quite trivial when compared with the aggregate pollution of rivers and streams from communities situated on, or contributing pollution to, these waters, before they reach your district."

TARVIN RURAL DISTRICT.—"In the Tarvin Rural District all the tributary streams of the Gowy are more or less polluted by farm sewage, which should be dealt with on the land. Public sewage disposal works are likely to pollute the Dee and Aldford Brook. Private sewage disposal works are likely to pollute the brook at Tattenhall and the Dee at Farndon. Solid matters, accumulation of cinders, refuse, sludge, etc. :—The River Dee at Farndon, the brook at Tattenhall, Tilston brook. House drainage :—The River Dee at Farndon, Tilston brook, Churton Heath, Tattenhall, Milton brook at Barrow, Clotton brook from farm and house sewage, at Clotton, Guilden Sutton, from house drainage. Manufacturing waste or effluents :—The Bone and Glue Works, Tattenhall Road, pollute the Gowy ; the Creamery, Tattenhall and a cheese factory at Churton Heath."

WIRRAL RURAL DISTRICT.—"There are certain streams running through your district which are polluted by house drainage. The stream which runs from Heswall to Raby Mere through the hamlet of Brimstage also receives the effluents from Clatterbridge Workhouse filter beds and the fever hospital sewage purification apparatus. The stream which runs through Thornton Hough and Raby Vale into Raby Mere was fouled by sewage, but is much cleaner since Thornton Hough sewerage works were completed. Residences which are distant from sewers and drained into cesspools not infrequently are found to have connected unauthorised overflow pipes to ditches and in this way the ditches soon became insanitary. The keeping of ditches clean is one of the greatest problems with which the Sanitary Authority has to contend. A constant struggle is maintained in relation to the question of liability to cleanse the water courses and ditches and in some instances there is no question but that technically they must be regarded as unpipec sewers."

Section XI.—Refuse Removal and Disposal.

Sanitary Authorities do not progress so quickly in this matter as in most other things affecting the public health. The large numbers of privy-middens still in existence in thickly populated areas form a standing disgrace to public health administration. May I repeat from a previous report that until these are abolished no really effective blow can be struck at infantile mortality, typhoid fever and other filth-borne diseases. The figures contained in the comparatively few extracts from Health Reports that I present herewith shews the extent to which these gross abominations are still in existence in large towns and Urban Districts. Much more wholesale action is needed if any improvement in public health is to be attained—action for instance which has been so commendably taken by the Runcorn Urban and Rural District Councils where loans have been obtained for the conversion of privy-middens to water-closets and the work of conversion carried out in a thorough and comprehensive manner.

In the following tabular statement taken from a recent return prepared by the Public Health Department of the Local Government Board the condition of the several Urban areas in the County in this respect is set out and it does not form pleasant reading.

After years of sanitary administration it does not indicate great progress when one learns that there are wet ashpits to the number shewn in the following areas:—

Altrincham Urban District	...	1843
Northwich Urban District	...	1377
(Some of these however are dry ashpits).		
Sale Urban District	...	1010
Wilmslow Urban District	...	900
Dukinfield Municipal Borough	...	779
Hazel Grove and Bramhall Urban District	...	763
Lymm Urban District	...	760
Marple Urban District	...	749
Bollington Urban District	...	672
Bredbury and Romiley Urban District	...	545

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Nor does it indicate a high standard of public sanitation when one reads the large number of districts in which for one reason or another the refuse from fixed ashpits (many of which are wet ashpits) has to be emptied out on to streets and yards and left lying for a time before it can be loaded up and removed. Yet this is the case even in the Boroughs of Crewe, Hyde and Macclesfield, to say nothing of several residential districts such as Sale, Wilmslow, Alsager, Bromborough, Cheadle and Gatley, Knutsford and Alderley Edge.

Refuse destructors (which provide the only sanitary method of ultimately disposing of house refuse) are only to be found in Hyde and Stalybridge and are in course of construction at Marple and Lower Bebington. Tips are still in use in the majority of the districts of the County.

TABULAR STATEMENT

as to Scavenging, &c., arrangements in the Urban areas of the County (taken from the Return of the Local Government Board).

TOWNS WITH COVERED GALVANISED ASHBINS.

"In the following districts 95 per cent. or more of the receptacles used for the storage of house refuse are covered galvanised-iron bins. The number and nature of receptacles of other types is given in each case:—

Runcorn Urban—70 dry ashpits.

TOWNS WITH ASHPITS.

"In the following districts 5 per cent. or more of the receptacles used for the storage of house refuse are either fixed ashpits in combination with privies (wet ashpits) or fixed ashpits not in combination with privies (dry ashpits):—

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Name of District.	Number of Wet Ashpits.	Percentage proportion to total receptacles.	Number of Dry Ashpits.	Percentage proportion to total receptacles.	No. of Ashpits replaced by covered bins in recent years.
Crewe	277	3	2,663	26	65 (in 1912).
Hyde	133	3	2,315	47	235 (in 1913).
Macclesfield	334	9	...	...	2000
Stalybridge	755	23	363	11	316 (past 7 years).
Altrincham	1,843	60	Few.	...	379 (since 1905).
Ashton-on-Mersey	272	19	340	23	54 (last 2 years).
Bollington	672	55	317	27	86 (since 1910).
Bredbury and Romiley	545	29	336	18	266
Cheadle and Gatley	412	17	415	17	128 (1908 to 1912).
Congleton	320	12	12	...	200 (past year).
Dukinfield	779	27	64	2	750 (last 5 years).
Ellesmere Port and Whitby	95	4	176	8	40
Hale	180	10	390	21	433 (1908 to 1913).
Hazel Grove and Bramhall	763	43	695	40	260
Hoylake and West Kirby	10	...	202	6	15 (last 3 years).
Knutsford	86	8	286	25	82
Lower Bebington	11	...	456	17	229 (1909 to 1912).
Marple	749	43	196	11	541 (since 1907).
Nantwich	106	about 8	440	about 35	440 (1911 to 1913).
Northwich	1,377	51	...	...	20 per annum.
Sale	1,010	26	1,650	42	300 (last 3 years).
Sandbach ... ..	...	...	794	78	42 (1913).
Wilmslow	900	56	420	26	60 (1913).
Alderley Edge	88	13	135	21	67 (last 5 years).
Alsager ... ..	...	...	50	7	50 (last 6 years).
Bromborough	47	12	62	16	14
Buglawton	276	100	...	...	None.
Compstall	70	48	70	48	7
Handforth	120	74	12	7	None.
Higher Bebington	14	4	138	39	198
Hollingworth	218	42	168	33	28
Lymm	760	61	400	32	30 (last 5 years).
Middlewich ... ..	...	...	528	66	70
Mottram-in-Longdendale	200	41	83	17	35
Neston and Parkgate	375	39	200	21	100
Tarporley	100	45	120	55	None.
Yeardsley-cum-Whaley	324	85	40	10	17

TYPE OF RECEPTACLE REQUIRED IN NEW HOUSES.

"In many districts it is the practice to insist on the provision, in connection with new buildings, of properly covered galvanised-iron bins for the storage of house refuse. The exceptions are:—

Macclesfield—Galvanised-iron pails.

Bollington—Bye-laws require dry ashpits, but bins are also provided.

Bredbury and Romiley—Ashbins or pails.

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Hazel Grove and Bramhall—Ashpits or galvanised-iron bins.

Sandbach—Covered ashpits or galvanised bins.

Buglawton—Galvanised pails permitted.

Handforth—Galvanised bins or ashpits.

Tarporley—Dry ashpits.

Yeardsley-cum-Whaley—No special type.

COLLECTION OF REFUSE.

TOWNS SCAVENGED BY CONTRACT.

“In many towns refuse is collected and removed from the whole district, or at least from the densely populated parts of it, by the Council’s own men. In the following districts, however, the chief, or a large part of the district is scavenged by contract:—

Northwich—All by contract.

Winsford—Collection by Council, team labour by contract.

Alsager—All by contract.

Higher Bebington—All by contract.

Middlewich—Collection by Council, team labour by contract.

Mottram-in-Longdendale—All by contract.

TOWNS SCAVENGED BY OCCUPIERS.

“In the following cases occupiers remove and dispose of their own refuse in a large part of the district. In some instances Bye-laws regulating the work are in force, in others there are no restrictions:—

Compstall—All refuse is collected by occupiers.

Handforth—Occupiers perform scavenging.

Hollingworth—Occupiers are responsible for collection of refuse, but the Council are willing to do this work on payment.

Tarporley—By occupiers.

Yeardsley-cum-Whaley—By occupiers.

TYPE OF CART USED WHERE PUBLIC SCAVENGING IS CARRIED OUT.

“Covered carts are generally used, or if open carts are used they are covered with waterproof sheets when full. In the following districts, however, open carts are said to be

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used and it is not stated that they are covered with sheets when full:—

Bollington.
 Congleton.
 Hazel Grove and Bramhall.
 Northwich.
 Sandbach.
 Bromborough.
 Buglawton.
 Lymm.
 Mottram-in-Longdendale—Open carts for dry refuse.
 Neston and Parkgate.

EMPTYING OF REFUSE INTO STREETS OR YARDS.

“In some districts the collection of refuse from fixed ash-pits (which is often done during the night-time) involves emptying it into streets or yards. This is the case in the following districts:—

Crewe.
 Hyde.
 Bollington.
 Macclesfield.
 Cheadle and Gatley.
 Ellesmere Port and Whitby.
 Hazel Grove and Bramhall.
 Knutsford.
 Lower Bebington.
 Marple.
 Nantwich.
 Sale.
 Sandbach.
 Wilmslow.
 Alderley Edge.
 Alsager.
 Bowdon.
 Bromborough.
 Buglawton.
 Compstall.
 Handforth.
 Higher Bebington.
 Hollingworth.
 Lymm.
 Middlewich.
 Mottram-in-Longdendale.
 Neston and Parkgate.

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CESSPOOLS.

“Towns containing over 30 cesspools receiving sewage are given in the following list. In the cases marked the number of cesspools amounts to 25 per cent. or more of the total number of houses:—

Hazel Grove and Bramhall—45, not emptied by the Council.

Northwich—261, emptied by the Council monthly.

Lymm—50, not emptied by the Council.

Neston and Parkgate—39, emptied by the Council when required.

Yeardsley-cum-Whaley—89, not emptied by the Council.

DISPOSAL OF REFUSE.

TOWNS SENDING REFUSE OUT OF THE DISTRICT.

“In the following cases refuse is sent away and disposed of outside the district:—

Crewe—Occasionally refuse is carted away for the purpose of filling pit-holes.

Macclesfield—Practically all the refuse is placed on a tip about a mile from the borough boundary.

Altrincham—A small percentage is carted out of the district.

Bollington—25 per cent. of the refuse is carted away and tipped, or used on land.

Hoole—All refuse is carted out of the district to a tip in Newton parish.

Hoylake and West Kirby—All refuse is taken out of the district by covered cart and motor lorry and tipped.

Nantwich—About 50 per cent. of the refuse is carted out of the district and used on farms.

Alderley Edge—All refuse is carted out of the district and tipped into pits.

Higher Bebington—All is tipped into a disused quarry.

Middlewich—17 per cent. is used to fill up marl pits and holes on farm land.

DESTRUCTORS.

TOWNS WITH DESTRUCTORS.

“The following list shows towns which possess destructors

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and, where it is known, the percentage of refuse destroyed therein:—

Hyde—80.

Stalybridge—97.

Lower Bebington—In the course of construction.

Marple—In the course of construction.

TOWNS DISPOSING OF REFUSE ON TIPS.

“The following statement shows the districts with tips, the proportion of refuse disposed of on tips and the distance of tips from the nearest houses:—

District.	No. of tips.	Distance from houses.	Percentage of refuse disposed of on tips.
Crewe ...	(a) 1 temporary (b) usual tip is at sewage farm	(a) Not known (b) 400 yds.	Practically all asphalt refuse
Hyde ...	2	Not known	20
Stalybridge ...	Not known	Not known	3
Ashton-on-Mersey ...	1	300 yds.	all
Bollington ...	7	At least 150 yds. (6) Not known (1)	75
Bredbury and Romiley ...	6	Over 100 yds.	all
Cheadle and Gatley ..	5	160 yds.	bulk
Congleton ...	1	300 yds.	all
Dukinfield ...	2	At least 620 yds.	all
Ellesmere Port and Whitby	1	70 yds.	all
Hale ...	1	8 houses within 100 yds.	all
Hazel Grove and Bramhall ...	3	167 yds.	bulk
Knutsford ...	1	Not near any houses	all dry ashes
Lower Bebington ...	1	300 yds. away	all
Marple ...	1	200 yds.	all
Nantwich ...	1	120 yds.	50
Runcorn ...	1	Considerable	all
Sale ...	1	” ”	all
Sandbach ...	1	100 yds. ”	all
Winsford ...	3 or 4	Considerable	all
Alsager ...	1	” ”	Not known
Bowdon ...	1	250 yds. ”	all dry refuse
Bromborough ...	1	200 to 300 yds.	all
Buglawton ...	1	Considerable distance	all
Compstall ...	1	880 yds.	all
Handforth ...	1	200 yds.	all
Hollingworth ...	1	50 yds.	all except excreta
Lymm ...	1	70 yds.	all dry refuse
Middlewich ...	1	50 yds.	83
Mottram-in-Longdendale ...	1	280 yds.	all
Neston and Parkgate ...	6	80 yds. (1) Some distance (5)	all
Tarporley ...	2	50 and 100 yds.	Not known
Yeardsley-cum-Whaley ...	1	100 yds.	all

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MISCELLANEOUS METHODS OF DISPOSING OF REFUSE.

“The following arrangements for disposing of refuse in various districts are of interest:—

Crewe—Midden refuse is tipped on farm and eventually ploughed in.

Macclesfield—Small quantity of night soil is carted to farms.

Cheadle and Gatley—The refuse from fixed receptacles is taken to farmers' land and used as manure.

Hazel Grove and Bramhall—A small portion consisting of privy refuse is given to farmers for use as manure.

Knutsford—Night soil is disposed of on agricultural land.

Wilmslow—The refuse is used by farmers on bog land known as Lindow Common.

Alsager—By arrangement with farmers a portion is used for filling in old pits.

Hollingworth—Excrement is used by farmers on land.

Lymm—All night soil is disposed of to farmers.

Tarporley—The refuse is used on agricultural land in some cases.

TRADE REFUSE.

“The following cases illustrate the practice in regard to trade refuse in various towns:—

Crewe—The Council provide bags for waste paper from business houses and these are emptied weekly.

Macclesfield—Butchers' and Fishmongers' offal is removed free and sold to manure works.

Dukinfield—Fish offal is taken to Hyde where it is converted into manure.”

The Winsford Urban District Council has recently issued the following circular on the provision for scavenging of house ashes:—

“The Council has had under consideration the serious objection which has been taken from both a highway and sanitary point of view, to the practice which has hitherto been carried out in this district of placing ashes upon the public roads, thereby obstructing the road in an objectionable and

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dangerous manner and also tending to propagate any infectious disease which may arise within the Urban District. The attention of the Council has been called to this, not only by their own Medical Officer of Health, but also by Medical Officers representing the Local Government Board.

“With a view of meeting the property owners and occupiers of the district, the Council has purchased a large number of galvanized iron ashbins of a suitable size so that the same may be used as receptacles for ashes until removed and carted away. The price of each ashbin is 5/9. They are of a strong serviceable pattern and provided with handles so as to facilitate emptying into the carts which come round for the removal of ashes. The Council therefore gives notice that such ashbins can be obtained from the Surveyor, at his office, at any time on application and on payment of the price above-named.

“The Council further undertakes that where such ashbins are provided they will remove them, if placed in a suitable position, from the occupied premises to the cart, thus avoiding the necessity for placing the ashes and other objectionable matter on the street to the detriment of the health of the district and the inconvenience of passengers using the roads. This course will be a great saving and advantage to tenants because they will not be put to the cost and trouble of removing their ashes into the street.

“The Council further gives notice that at the expiration of six months from this date they will not sanction or permit the placing of ashes on the streets, nor will ashes be removed otherwise than by means of ashbins provided either by the Council or of a similar pattern. The Council asks for the aid and assistance of all owners and occupiers in carrying out this provision. To show the necessity for measures being taken, it may be stated that 30 cases of diphtheria have occurred in this district this year up to June and it is believed that the continued prevalence of the disease may be encouraged by the constant deposit of refuse in the streets. The Council are hoping to make arrangements to remove ashbins at least once a fortnight. Garden or similar refuse must be burnt and not put in the bin.”

I append the remarks of the District Medical Officers of Health and Inspectors:—

CONGLETON MUNICIPAL BOROUGH.—“A house to house and factory inspection made during the year showed there

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are 2,240 pail closets, which are emptied every week, 355 midden privies, emptied on notice received and 866 water-closets, 53 of which were supplied in the year, viz.:—16 to replace pail or privy-closets, nine to factories and 28 to recently built houses. The midden privies are being gradually replaced by pail or water-closets and in future all new buildings will have to be provided with water-closets.”

CREWE MUNICIPAL BOROUGH.—“The following figures give the approximate number of the several forms of closet accommodation in the town at the end of the year 1911, 1912, 1913 and 1914 respectively:—

	1911	1912	1913	1914
Water-closets	7,099	7,230	7,379	7,522
Waste Water-closets ...	1,008	1,006	1,005	1,003
Pail-closets	3,053	2,990	2,884	2,846
Uncovered Privy Middens }	—	—	—	—
Covered „ „ }	321	277	251	212
Cesspool Privies	—	—	—	—
Fixed Receptacles ...	2	2	2	—
Total	11,483	11,505	11,521	11,583
Number of Houses concerned	10,378	10,392	10,405	10,442

“The work of reconstructing insanitary conveniences has progressed in 1914 with the result that there are 81 more water closets in old property than was previously the case.

“The approximate number of dustbins, etc., at the end of 1913 was:—

Dustbins	7,483
Covered Ashpits ...	2,572
Uncovered „ ...	44

“The scavenging required to deal with the house refuse, trade refuse, the waste paper and the nightsoil is carried out under the superintendence of your Chief Sanitary Inspector. Weekly scavenging of all house refuse would be advantageous. Since the initiation of the collection of waste paper in 1903, from bags supplied by the Health Committee, this work has steadily increased and a re-adjustment in the organization has been called for to cope with it. On the initiation of your Chief Sanitary Inspector, arrangements were made last year

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for the sale of the waste paper and in 1914 107 tons 15 cwt. were sold and realised £42 5s. 5d. The refuse is disposed of on tips at the Corporation farm and elsewhere. During the summer months the spraying of the walls and floors of covered ashpits was carried out. This was done on 5,605 occasions with a 2 per cent. solution of chloros, as a preventive measure against epidemic diarrhœa. In addition, midden privies were sprayed on 409 occasions. Towards the end of the year your Medical Officer pointed out the increasing need for a refuse destructor, as all the existing tips would be filled up before long. This question awaits your very careful consideration."

DUKINFIELD MUNICIPAL BOROUGH.—"The scavenging department is divided into three sections:—

- (1) House refuse which is removed during the day time.
- (2) Privies, pail-closets, &c., which are emptied during the night time, between 11 and 6 o'clock.
- (3) Street scavenging, the administration of which is carried out by the Health Committee.

"At present there are four systems of closets, viz.:—ashpit privies, pails, automatic flush closets and fresh-water closets. The Committee have advocated a steady substitution of water carriage for the two first systems just mentioned. Wherever practicable fresh-water closets are put in rather than the automatic flush. There is no doubt if the annual charges for water supply, 10/- per closet, were less, it would hasten materially the number of conversions. Eighty-two closets have been converted during the year. The intention is, where possible, to carry out the principle of *one house one closet*. As a result of the increased heavy traffic in recent years from tramways, heavy and speedy motor traction and other vehicles mud is attracted to the surface of the streets, due to weight and suction. The result is that the streets are dirtier and require more frequent attention, especially in wet weather. Street gully refuse is carted away with a tumbler cart either to farmers or the Corporation tip. During hot or dry weather the streets are watered by means of two patent water sprinkling carts to keep down the dust and cool the streets. At the same time disinfecting fluid is added to the water to prevent immediate putrefaction of horse droppings and other organic matter.

"The administration of street scavenging is carried out by the Sanitary Department. Road and street sweeping and

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the emptying of gullies are regularly and systematically carried out by means of manual labour and mechanical sweeping brushes. The method of scavenging the streets by means of handcarts is still very successful. By it a particular surface of any street is oftener swept, the streets are kept cleaner, there is considerably less mud and not so much refuse to get into gullies. These do not require emptying so often. There is less putrefaction going on in the gullies and on the surface of the road and better facilities for getting rid of sweepings to farmers, gardeners, &c.”

The Inspector remarks:—“At present there are four systems of closets, viz.:—ashpit privies, pails, automatic flush closets and fresh-water closets.

“The approximate number of each type is appended:—

Ashpit privies	...	...	..	779
Pails	...	...	...	484
Automatic flush-closets	...	...	...	1,381
Fresh-water-closets	...	...	...	800

“The accommodation of these several kinds are adequate to meet the requirements of the district. The Committee is gradually reducing the number of ashpit privies by conversion on to the water carriage system either by means of the automatic flush or fresh water. The number so dealt with during 1914 is as follows:—

No. of houses dealt with	...	...	76
„ Fresh-water closets erected	...	...	69
„ Slop	...	...	13
„ Ashpit privies dispensed with	...	...	33

“The fresh-water closets include ten erected under the Factory and Workshops Act. These automatic flush closets are inspected monthly and reported on to the Sanitary Committee in tabular form.”

HYDE MUNICIPAL BOROUGH.—“During the year 386 ashpits have been demolished and 880 ashbins substituted. Sixteen pail closets have been converted to water closets and 29 privies have been converted to pail closets. The work of refuse removal is carried out by a staff of men under the supervision of Mr. Miles, the Chief Sanitary Inspector, with horses and carts belonging to the Corporation. The Inspector reports that 27,777 ashpits, 7,639 pails and 82,621 ashbins have been

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emptied during the year. 7,810 loads of refuse have been taken to the destructor, being an increase of 572 loads, compared with 1913."

STALYBRIDGE MUNICIPAL BOROUGH.—"With respect to refuse removal it may be said that, as the water-carriage system is gradually being adopted, there is a greater quantity of dry refuse to be collected and lesser quantity of midden refuse to be dealt with. This order of things is bringing about a change in the working, with the result that shortly there will be more horses and carts working in the daytime than at night. The system now in vogue, including the dividing up of the borough into districts, for the collection and removal of the refuse, is working satisfactorily, but it is essential that in the future efforts should be made to instal the regulation size of ashbin for dry refuse. At the present time there are open ashpits, covered-in ashpits, ashtubs without covers, ashbins with covers and ashbins enclosed in covered places for storage of household refuse. When conversions are about to take place and the plans are being prepared, suggestions are made to the persons concerned to supply their houses with covered ashbins, if possible one to each house. These suggestions are nearly always acceded to, with the result that gives a minimum amount of work with a maximum of sanitation. It has been clearly shown that the ashbin system is the most economical system of dealing with household refuse, as the refuse can be more easily and expeditiously dealt with, without the use of barrows and other implements necessary when ashpits have to be emptied.

"The greater portion of the town is now on the water-carriage system, for rapid strides continue to be made in the conversion of privies into either waste water or town's water-closets, with receptacles for house refuse and these conversions are mostly taking place among the worst types of privy ashpits. Since October 1st, 1907, the Sanitary Department has had entire control over the removal and disposal of all midden and house refuse in the borough, which, with the exception of that from the Carrbrook and Hey Heads districts, is now conveyed to the town's destructor at the 'Flatts.' The refuse destructor, erected by Heenan and Froude, of Manchester, is a five-cell furnace of the 'Heenan' patent top feed type and is furnished with all the latest improvements. The plant is shut down about every six weeks for a few days to allow of the cleaning of the combustion chamber, the flues, the superheater, etc."

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The Inspector states:—"The conversions from the privy midden and pail systems to the water-carriage system have been steadily going on during the year and the total consists of 78 town's water and 15 waste-water-closets. To these figures must be added 53 town's water and 15 waste-water-closets which have been erected mainly in consequence of the conversions having taken place. At several properties where previously the privy system maintained, the accommodation worked out at three houses for each convenience: this arrangement has now been abolished and one water-closet for each house has been erected. Greater attention has also been paid to the reconstruction of the drainage on many premises where surface drains were in vogue. New drain pipes and gully traps have been substituted and the surface of the yards considerably improved and brought up to modern requirements. A weekly inspection of the water-closets in the borough is carried out and where any blockage is found an attempt is made by the man to remove the same. Where it has been of a temporary character he has removed the same; but if the blockage has required attention to the drains, then preliminary notices have been sent to the agents or owners of the properties involved. By this means 84 water-closets have been unstopped and 36 notices have been served requiring the owner to attend to the same. This procedure has produced the desired effect of assisting the property owner, as well as preventing a state of affairs from existing which would be anything but desirable."

ALSAGER URBAN DISTRICT.—"The closets have been regularly emptied. The original brick-closets are being gradually replaced by earthenware pans and water-closets, which alone are now sanctioned by the Council. Scavenging is carried out by contract by C. H. Bennion, Lawton Road, Alsager. Approximate number of the following in the district:—

				How frequently scavenged.
Midden-privies 310 about	...	...	...	Fortnightly or as required.
Dry ashpits 30	„	...	...	As required.
Pail-closets 2	„	...	...	Weekly.
Dustbins 630	„	...	...	Weekly.
Cesspools 30	„	...	...	As required.
Fresh-water W.C's estimated at 328.				
Waste-water and hand flushed W.C's 30.				

The scavenging has been done thoroughly, ashes and refuse are collected from the houses in boxes, which are emptied into carts and removed every week."

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ALTRINCHAM URBAN DISTRICT.—“A statement as to the privy and water-closet accommodation is given below :—

No. of Common privies	...	...	1703
„ „ Movable receptacles	...	...	19
„ „ Fresh-water-closets	...	...	2215
„ „ Waste-water-closets	...	...	208
			<hr/>
			4145
			<hr/>

The number of privy conversions into water-closets during the year was 34. In connection with this matter, the Council has decided to attack the conversion of privies on a large scale and as soon as plans and estimates are ready, application will be made to the Local Government Board for sanction to borrow the sum necessary to convert 1,000 as the first instalment towards the complete abolition of privies in the town. The removal of dry refuse is carried out weekly and the cleansing of privies, ashpits, &c., is regularly carried out by the Council's workmen at periods of about once a month or less. The supervision of this work is carried out by the Surveyor's department, as recommended by the Local Government Board's Circular.”

ASHTON-UPON-MERSEY URBAN DISTRICT.—“The number of privy middens converted into fresh-water-closets during the year is 142, 140 of which have been carried out under the Act of 1907. This brings the total number of conversions up to 332. The number of privy middens at the beginning of the year was 381. In addition to the conversions carried out 14 privies have been done away with and the total number of privy middens now stands at 225.

Fresh-water-closets number	...	...	1,566
Waste do do.	...	...	16

“Forty-eight dry ashpits have been pulled down and galvanized iron ashbins substituted for the same. The number of ashbins in the district is now 946.”

HIGHER BEBINGTON URBAN DISTRICT.—“Nearly all the houses are provided with water-closets, but in the more rural portion of the districts there are 12 privy middens and six pail-closets. Six houses drain to cesspools. Scavenging is performed by contract. The house refuse and contents of the midden privies are removed by the contractor at short intervals. There are still 138 ashpits,

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but dustbins have been substituted in place of ashpits at 198 houses out of a total of 352. The cost of scavenging is about £90 per annum."

LOWER BEBINGTON URBAN DISTRICT.—"Water carriage is the general rule throughout the district. the conservancy system having been abolished so far as houses within reach of the sewers are concerned. The seven midden privies which still persist have their contents emptied on garden land for manurial purposes. There are two houses drained to cesspools. There are 2,659 inhabited houses, 2,214 of which are provided with movable refuse receptacles with proper covers; 435 have ashpits and 10 have ashpits in combination with privies. During the last four years 250 refuse middens and ashpits have been replaced by bins and the latter, or covered and cemented ashpits, are required to be provided in connection with all new houses. Refuse is collected by the Council's employees, bins being emptied once a week and ashpits at monthly intervals. Covered carts are used in collecting, but where there are ashpits the material removed has to be temporarily deposited on the street surface. The method of disposal of the refuse when collected is by tipping on a site situated in the midst of agricultural land, 300 yards from the nearest dwelling-house and about one mile from the centre of the district. No trade refuse is dealt with. Street scavenging is well done, the main roads being cleansed daily and other roads weekly, or as often as may be required. Farmers and others remove the manure from cowsheds and stables. In the more urban parts it is removed once a week.

"The destructor has been erected and passed satisfactory tests by the contractors in November. It has been in use for the disposal of refuse since the middle of July. The steam disinfecter in connection with this has been of great service for the sterilizing of military equipment, clothing and bedding, where it was essential to return these articles in the shortest possible time. The work done met with the approval of the military authorities, both as a matter of efficiency and period involved."

BOLLINGTON URBAN DISTRICT.—"Fifty water-closets have been fitted during the year, making in all a total of 585 now so supplied. The number of movable ashbins with covered tops now in use is 543.

"Complaints of the manner of emptying the privy middens were not infrequent, especially during the early part of the

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summer, the chief being that of the time the contents were allowed to lie in the road pending the arrival of the farmer who had undertaken to remove them. Mr. Carter set himself to tackle this problem, which has been an old-standing difficulty. As a result he has experimented with a trolley and crane. The contents of the midden are thrown into a tub or box, which is wheeled on the trolley to the road, there the box is picked up by the crane and tipped into the cart which, when filled, is taken away. There is no doubt that this means is certainly an improvement and should be capable of further development. A second cart put on the job would obviate any waste of time which may now occur. No trouble and reasonable expense should be spared which will prevent the soiling of the entries and highways with this noxious matter."

BOWDON URBAN DISTRICT.—"The scavenging of the district is under control of the District Council and works well. The dust-bins and pail-closets, of which there are 486, are emptied weekly and the middens, of which there are 64, are frequently scavenged, the work being done under the control of the Council."

BROMBOROUGH URBAN DISTRICT.—"In the more urban portion of the district water-closets are the rule and at inspections these have always been found to be clean and well looked after. There are 40 privies in existence, seven fewer than in 1913 and 28 less than in 1910. Five privies have been converted into water-closets and two to earth closets during the year. At the present time 305 dustbins are in use, compared with 279 in 1913, these are emptied weekly. Forty privies and ashpits combined and 50 separate ashpits are also in use, which are emptied once a month. The privy refuse is removed by the contractor on to his own land. Ashpit and dustbin refuse is removed and deposited by the Council's employees on a piece of waste land at the top of the Rake. There are six cesspools which are emptied by the owners when required. The streets are scavenged by the Council's employees and are kept in a very good state of cleanliness. Farmers and others remove manure from cowsheds and stables."

CHEADLE AND GATLEY URBAN DISTRICT.—"The disposal of refuse is done by your Council's own men under the direct supervision of your Sanitary Inspector, who drew up a very thorough scheme in 1910. This scheme continues to work very satisfactorily, and extremely few complaints were received. In your Inspector's report, which is appended to this report is a summary of the number of loads of house and other refuse removed from

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dwelling-houses during the year ; he remarks that the work of this department is increased considerably by the large amount of garden refuse placed in the ashpits and dustbins and also the amount of combustible material which ought never to have been removed from the houses. During 1913, owing to the large amount of garden refuse placed in the dustbins and ashpits your Council instructed the Sanitary Inspector to have bills printed and circulated prohibiting the placing of this refuse in the receptacles. The bill, a copy of which is in your Inspector's report, was posted on the bins and ashpits and has been most beneficial. Fifteen privies have been abolished and replaced by water-closets and 21 ashpits have been done away with and replaced by dustbins. Four privies have been repaired and 34 ashbins have been replaced. There are now in the district :—

1,715	houses	provided	with	water-closets.
638	„	„	„	privy middens.
6	„	„	„	pail-closets.
1,593	„	„	„	dustbins.
409	„	„	„	dry ashpits.

The Inspector reports :—“ During the year the system of removal of house refuse has worked satisfactorily. The applications for the emptying of ashpits are very few in number and would be still less if occupiers were not so wasteful in their habits. In the early summer one of the refuse tips caught fire and I had some difficulty having it extinguished, largely owing to the amount of combustible material in the tip which ought never to have been removed from houses. During the autumn of 1913 a large amount of garden refuse was placed in the ashpits and dustbins, thereby increasing the work considerably. On reporting this to your Council you instructed me to have bills printed and distributed prohibiting the placing of this refuse in the receptacles.”

COMPSTALL URBAN DISTRICT.—“ The closet accommodation is sufficient, being one to each house. The ashpits are not emptied regularly and complaints have been received. The owners of the property remove the ashpit refuse. I advise the Council to arrange for more regular and frequent emptying and cleansing. The house refuse is generally burned by the inhabitants. The tip is a good distance away from any dwelling and in no way causes a nuisance.”

ELLESMERE PORT AND WHITBY URBAN DISTRICT.—“ In the main the town is provided with water-closets, but in the Whitby portion there are at least 10 midden privies in connection with

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houses which are within easy reach of the sewers. This number has been reduced from 16 and the remainder are being dealt with.

Number of water-closets	...	...	2,253
Number of privy middens	...	...	88
Pail closet	...	...	1

“The Council were asked by Dr. Yeoman to consider ‘the advisability of employing their own workmen and carts to keep the refuse receptacles in an empty state’ and the relative merits of this and the contract system have been debated on several occasions in the Health Committee, with the result that the work has been performed by direct administration since the terminating of the contract on the 30th June, 1914.”

HALE URBAN DISTRICT.—“The method of scavenging in vogue aims at the removal of refuse without soil pollution, as follows:—A low-built lorry laden with air-tight bins is drawn to the various parts of the district. To the rear of the lorry a rubber-tyred trolley is attached. Having arrived at the destination a bin is placed on the trolley and this is drawn and placed against or near the receptacle to be emptied and the contents of the latter are emptied direct into the bin. When full, the bins are taken to a tip and emptied there. This method is employed in all privies, pail closets and ashpits and has proved very satisfactory indeed and economical. Owners and occupiers are being encouraged to replace ashpits by bins and during the year 39 ashpits at 72 houses and 14 dry ashpits at 26 houses have been abolished and ashbins substituted. Ashbins are emptied direct into a covered cart. The air-tight bins used for the removal of the refuse are from time to time washed out with disinfecting solution and at other times are dusted with carbolic acid powder, each being done according to requirements. Privy ashpits are emptied every six weeks, dry ashpits every second month and bins weekly or fortnightly, according to circumstances and in all cases oftener if required. Any request or complaint is at once attended to.

“The closet accommodation existing in the district is shown by the following details:—

Double privy ashpits	..	49	} = 127 houses
Single ,, ...	...	29	
Houses with water-closets and privy ashpits			61
Total number of privy ashpits	139
Privy pails	25
Water-closets	2,097

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Multiple dry ashpits	...	4	} = 522 houses.	
Double „ „	...	131		
Single „ „	...	248		
Ashbins	1,512

“Progress continues with the work of refuse disposal, although I have again to record a decreased number of closet conversions, the total number of privies abolished being 72 with a substitution of 69 water-closets, against 85 abolitions and 79 water-closets in 1913. The reason for the decreased number is the increased cost in price, the amount allocated by the Council for this work being the same as in previous years. The whole of the privies have been abolished in Hermitage Road and Lilac Road and work has also been done in Albert Road, Bancroft Road, Hazelwood Road, Albert Road East, Queen’s Road, Park Road, Cecil Road and Stamford Park Road. In addition to privy ashpits, eight single, three double and three multiple dry ashpits have been abolished at 26 houses and replaced with ashbins, leaving 522 houses with dry ashpits, the majority of which are in the North Ward and structurally in good condition.”

HANDFORTH URBAN DISTRICT.—“Closet accommodation is separate for each house. These are not emptied as frequently and regularly as they should be. Scavenging is done by the property owners.”

HAZEL GROVE AND BRAMHALL URBAN DISTRICT.—“The collection of house refuse is performed by the Council’s own employees, privy ashpits being emptied about once in two months; dry ashpits, once a month; metal bins, once a fortnight. Uncovered carts with high sides are being used in such collection and emptying on to yards or streets, of course, is mostly involved, except in the case of ashbins, which are emptied direct into the cart. The following are approximate numbers, as nearly as can be estimated, of the various types of ashpits or receptacles for the storage of house refuse within the district, viz. :—

	Pail Closets.	Privies.		Dry Ashpits.	Metal Bins.	Other Receptacles	w.c.'s
		Ashpits.	Closets.				
Hazel Grove Drainage area...	6	635	1025	291	159	10	747
Bramhall Drainage area ...	—	119	156	410	161	26	1035
Totals in Whole District ..	6	754	1181	701	320	36	1782

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“During the past year 18 privy-closets have been converted. The house refuse collected is still disposed of by tipping on land situate within the Urban District and rented by the Council for this purpose, except a very small proportion of privy refuse which is given to farmers for agricultural purposes. The tips referred to are three in number and comprise :—

- 1.—Macclesfield Road Tip, situate off Macclesfield Road and consists of a low-lying piece of land about $3\frac{3}{4}$ acres in extent and requires to be levelled up to the height of surrounding lands. This tip is for the Hazel Grove portion of the area and is for all classes of refuse ; it is about 500 feet from the nearest house. This tip is rapidly becoming filled and will not last many more years, after which another site will be required.
- 2.—Robins Lane Tip, situate off Robins Lane, Bramhall, is a deep dingle, which is being filled up with dry ashpit refuse only, to form the site of a new road, proposed to be made at some time in the future across such dingle. This tip is about 500 feet away from the nearest house and is the tip which receives the refuse from the south end of Bramhall.
- 3.—Tenement Lane Tip, situate off Tenement Lane, is a similar tip to the Robins Lane tip in character, is 500 feet away from the nearest house and receives the dry house refuse from the northerly end of Bramhall.

“The whole of the above tips are carefully looked after by levelling the surface from time to time and any objectionable matter being either burnt or buried, so that no nuisance shall arise therefrom.

“The Council have not undertaken the removal of trades refuse, the tradesmen themselves doing this work. There are about 47 sewage cesspools within the Urban District which are cleansed by the owners or occupiers as often as may be found necessary, as the Council have not undertaken the emptying of cesspools.”

HOLLINGWORTH URBAN DISTRICT.—“The scavenging of all premises is carried out by the Council and also by private owners and is now quite satisfactory. The old property is in most cases served by midden-privies, which are being gradually abolished.

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Dry ashpits, pail-closets and dust-bins are also found. The approximate numbers are :—

Midden-privies	...	...	...	213
Dry ashpits	...	...	...	169
Pail-closets	...	...	...	113
Dust-bins	...	...	...	32
Cesspools	...	...	...	3
Waste-water-closets	...	...	...	54
Town's water-closets	...	...	...	58

“The cleansing of all these accommodations is in the hands of the Inspector, who sees that they are attended to when required. In the last quarter of the year I inspected the sanitary conditions of some property in Green Lane and, as a result, a notice was served on the landlord. The work, I understand, will be completed shortly. At the request of the Local Government Board I herewith append a table, showing the number of conversions during the year from one type of sanitary convenience to another :—

	1910.	1911.	1912.	1913.	1914.
Privies fixed to movable receptacles	Nil	Nil	6	4	Nil
Privies with fixed receptacles to fresh-water closets ...	Nil	10	1	Nil	4
Privies with fixed receptacles to waste-water-closets ...	2	Nil	Nil	Nil	Nil
Privies with movable receptacles to fresh-w.c.'s ...	Nil	Nil	Nil	3	Nil
Privies with movable receptacles to waste-w.c.'s ...	Nil	2	Nil	Nil	Nil

HOOLE URBAN DISTRICT.—“The whole of the privies in the district have been converted, except in the outskirts and there is ample accommodation. In Piper's Ash there are 34 privies and four pail-closets. The scavenging has been carried out daily by men in the employ of the Council. The streets have been kept clean and have been well watered whenever necessary.

- (a) Midden-privies, 34 in number, are scavenged monthly.
- (b) Dry ashpits 56 (28 of which are covered), are scavenged weekly.
- (c) Pail-closets, four, weekly.
- (d) Dust-bins and boxes, 1,192, weekly.
- (e) Cesspools, seven, weekly.”

REFUSE REMOVAL AND DISPOSAL.

HOYLAKE AND WEST KIRBY URBAN DISTRICT.—“The district is provided throughout almost its entire extent with water-closets and the conservancy system has been abolished, wherever practicable. Scavenging is carried out by a staff of men in the employment of the Council and is adequately performed. Covered carts are used in the collection and conveyance of refuse, which is disposed of by tipping on a site in the adjoining Rural District. After tipping it is sorted and the materials picked out are sold. Any nuisance which might arise from the tip is minimised by covering the deposit with 18 inches of soil. In connection with the storage of refuse, it should be mentioned that there are 3,007 houses provided with one or more bins and 205 houses provided with ashpits. All new houses are required to be supplied with bins. House refuse is collected weekly and the Council also remove trade refuse to the tip at the cost of the owners. There is only one cesspool, the contents of which are removed weekly by the scavengers. Urban District roads are scavenged daily by the Council's employees, and the main roads by Cheshire County Council workmen. Notices are sent to the owners of cowsheds, mews and stables requiring the periodical removal of manure. Local circumstances determine how long the accumulation is allowed to persist and the period varies from three to fourteen days.”

KNUTSFORD URBAN DISTRICT.—“The number of privies has been reduced by 19; of ashpits by 12; of pail-closets by 15; the number of water-closets has been increased by 37; and of galvanized ashbins by 28. The numbers remaining are therefore (as near as we know) 64 privies, 149 slop of waste-water-closets, 132 peat-pails, 906 water-closets, 793 ashbins and 274 ashpits.

“All ashbins and pail-closets are scavenged weekly; ashpits and privies monthly, or immediately on request. These operations total for ashpits and privies 1,832, pail-closets 7,908, ashbins 41,622 and 2,769 cartloads were removed to the tips. All street gullies have been kept cleaned out. The cost of scavenging has been:—Labour £415 11s. 11d.; forage, £66 10s. 4d.; repairs, £29 13s. 3d.; shoeing, £9 4s. 8d.; total, £521 0s. 2d.”

LYMM URBAN DISTRICT.—“House refuse is deposited in ashpits and ashbins, which are emptied by public scavengers at intervals as required. In 1914 10,584 ashpits were emptied and 1,668 loads removed therefrom. Ashes and refuse are conveyed by the Council's servants to tips. Nightsoil is made use of by farmers.”

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The Inspector remarks:—"The scavenging work of the district is carried out by the Council's workmen, and the night-soil is used by the farmers, the dry ashes and refuse being deposited in tips, chiefly at the Sow Brook Sewage Disposal Works. The number of emptyings of privies and ashbins during the year is 10,584, as compared with 9,440 last year and the number of loads of refuse removed is 1,668, as compared with 1,658 last year. This indicates that the privies and ashpits are being emptied more frequently. The following is approximately the number of sanitary conveniences in the district:—

Water-closets ...	...	...	...	...	690
Privies and ashpits combined	...	...	...	...	750
Dry ashpits ...	...	...	...	...	400
Pail-closets ...	...	...	...	...	30
Dustbins ...	...	...	...	...	100
Cesspools ...	...	...	...	...	50

"In 14 cases water-closets with flushing cisterns have been substituted for privy middens during the year."

MARPLE URBAN DISTRICT.—"The disposal of excrement in the district is by three methods, viz., water carriage, pails and middens. We keep converting privy middens into water-closets and ashbins as quickly as possible; 96 have been converted this year. The number of middens have fallen from 696 to 600; much still requires to be done. There are now 710 water-closets and 309 slop water-closets, pail-closets 100, dry ashpits 206, ashbins 877 and cesspools 20. The scavenging is done by the Council's men and has been much more satisfactory this year. The refuse is deposited on tips, away from habitation. There are 877 ashbins in the district, an increase of 100 in the year."

MIDDLEWICH URBAN DISTRICT.—"Refuse removal is carried out by the Council under the supervision of the Inspector of Nuisances. The approximate number of the following in the district is:—

				How frequently scavenged.
(a) Midden-privies ...	...	...	...	None.
(b) Dry ashpits ..	...	520	...	1—6 weeks.
(c) Pail-closets ...	...	533	...	Weekly.
(d) Dustbins ...	...	296	...	Weekly.
(e) Cesspools	418	...	1—6 Weeks.

"The present system, in my opinion, is not inadequate in any respect."

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MOTTRAM URBAN DISTRICT.—“Refuse removal is done by contract. The district is supplied with ashpit privies and pails. The pails are emptied each week. All new property must be on the pail system. People will persist in throwing garden and vegetable refuse into the midden, also water. This makes it much more difficult to clean and increases the smell from them. I am requested to report on the following information which I have received from your Sanitary Inspector:—

		1913.	1914.
No. of Privies—Fixed receptacles . . .	...	428	407
„ „ Privies –Movable receptacles . . .	...	180	188
„ „ Fresh-water closets . . .	...	89	94
„ „ Waste-water and hand-flushed closets . . .	...	25	25

Conversions.	1909.	1910.	1911.	1912.	1913.	1914.
Privies fixed to movable receptacles . . .	8	6	11	16	20	13
Privies with fixed receptacles to fresh W.C.'s...	2	9	15	2	6	3
Privies with fixed receptacles to waste-W.C.'s...	—	—	—	—	1	—

“In all new buildings where the houses are conveniently situated as regards the sewers water-closets are advised. In some cases where the houses are of the villa type and there is no sewer near the water-closets empty into cesspools. No complaints have ever been made regarding the cesspools. This district compares more favourably as regards zymotic diseases than any of the surrounding ones where there is a main sewer throughout the whole district. Diphtheria one scarcely ever sees. Enteric fever is almost unknown. On the whole the health of your district is excellent.”

NESTON AND PARKGATE URBAN DISTRICT.—“The conversion of privies to water-closets proceeds slowly, owing in great measure to a failure to recognise the advantages to the community which will be derived from the removal of the loathsome and insanitary midden privy from the midst of a population which is still inclined to consider itself rural and to tolerate sanitary conveniences in no way adapted to the changed conditions of the area. The neighbouring urban districts of Hoylake, West Kirby and Lower Bebington have abolished their midden privies and in Ellesmere Port very few are left.

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“The conversion of privy middens to water-closets is given hereunder:—

1911.	1912.	1913.	1914.
4	16	23	19

“In addition to the 19 conversions, seven new water-closets were supplied to old houses. The approximate number of each type of closet is:—

Privy middens	...	...	333
Water-closets	...	...	701

“There are 39 houses draining to various types of cess-pool arrangements.

“Apart from midden privies there are approximately 190 ashpits in the district, many of which are of very large capacity, badly constructed, difficult to empty and impossible to clean in a satisfactory manner. On the other hand there are some 400 galvanized bins with proper covers in use and it is satisfactory to record that these are on the increase, for during the last few years over 133 have been substituted in place of ashpits. The galvanized iron bin is provided in connection with all new houses. Refuse is collected by the Council’s employees: bins weekly, ashpits fortnightly or monthly. The occupants of the district have been circularized by the Council to destroy by burning all refuse. The carts employed by the Council for the collection and removal of refuse are now covered with tarpaulin sheets. The final disposal of refuse is on four tips on agricultural land within the district.

“Street scavenging is carried out by employees of the Council and has improved within recent years coincident with a better surface on the streets, which in the main thoroughfares are tar sprayed. In the months of July, August and September an attempt is made to keep the refuse receptacles practically empty in an endeavour to prevent the recurrence of infantile diarrhœa. It may be stated that partial success is obtained, as the outbreaks do not affect nearly as many children as in the years before the Council undertook this work. The refuse removed amounted to 2,636 tons; 19,197 ashpits and bins were emptied and the cost involved was about £260. A very good result has been obtained through the distribution of the following handbills:—

1. Neston and Parkgate Urban District Council.—The Council would draw attention to the fact that ash-

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pits are for ashes and not for objectionable or decaying rubbish. Such rubbish must be burned or buried.—By Order.

2. Trade and Garden Refuse.—The Council have given instructions to their carters and men not to remove from any premises any waste paper unless it is properly bagged and they hereby give notice that no trade refuse of any description, or garden refuse, will be removed without a charge being made, which will be payable to the Council's collector.—By order, J. P. Gamon, Clerk to the Council.

“Manure from cowsheds and stables is not removed by the Council, but is undertaken by the farmers and others as occasion may require.”

NORTHWICH URBAN DISTRICT.—“The scavenging is done by one contractor and the refuse deposited upon ‘tips.’ This method of dealing with it is the cause of nuisance and the provision of anything like suitable ‘tips’ getting very difficult. The authority are alive to the necessity for a better treatment of the matter and visits have been made by a committee to various towns where the latest types of destructors are in operation. It is probable that in the near future this necessary sanitary reform will develop, the increased water supply will enable ‘water carriage’ to be adopted and help ultimately the difficulty of providing a destructor. The approximate number of receptacles and the period of scavenging are as follows :—

Privy-middens	...	None	...	Scavenged.
Dry ashpits	...	1376	...	Monthly.
Pail-closets	...	1540	...	Weekly.
Dustbins	...	1579	...	Weekly.
Cesspools	...	262	...	Monthly.

The Inspector remarks :—“Scavenging is still carried out under one contractor and continues to give great satisfaction both to the public and myself. Some difficulty has been encountered during the latter part of the year by a number of the men leaving to join the army ; up to the present this has been met by older men taking their places.

“The tip question that was so serious last year has to some extent been improved by the contractor employing a man to burn the loose paper and cover up the old tins and garbage. This has given the Council time to consider the erection of a destructor in

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the near future. Verbal notices still receive early attention, which prevents many complaints and to still further improve the work; the contractor has decided to scavenge the centre of the town twice weekly.

“During the year 8,800 loads of dry ashes and 1,460 loads of night soil were removed at a total cost of £1,350. The night soil is made into farm manure and is removed to farms outside the Council's district. During the year 97 sanitary pails have been supplied by the Council, 79 of these being renewals. This is the same number that was issued last year for the same purpose and the remaining 18 took the place of defective pails which had not been supplied from the Council's stores previously. No cesspools during the year have been converted to the pail system as all defective cesspools have now to be changed to the water carriage system. During the year 30 cesspool closets were converted into water-closets and the cesspools filled up. This work has been carried out under notice. There are still 13 notices for the conversion of cesspools remaining in hand. Twenty-three pail-closets which had become defective have been re-constructed on the water carriage system. Most of these pails would have been renewed from the Council's store.”

RUNCORN URBAN DISTRICT.—“The Runcorn Sanitary Authority was among the first to take full advantage of the provisions of the Housing and Town Planning Act of 1909 in respect to privy conversions. Operations were commenced in May, 1912. By December 31st, 1913, 2,934 privies had been converted into water-closets and during the year ending December 31st, 1913, 151 more conversions had been completed. There now remain only some twenty privies unconverted, either because the property to which they belong has been condemned or because the local conditions prevent suitable sewerage although in some cases the matter is to be tackled in the near future. The scheme of conversion sanctioned by the Local Government Board has been thoroughly carried out under the supervision of the Council's Surveyor, Mr. J. Wilding. In conjunction with this work of conversion every opportunity was taken to deal with faulty drains or sewers and perfect sewerage was in this way secured throughout the whole town.

“It should be pointed out that within the Urban District there are about 200 tipper closets scattered throughout the six wards. These are very unsatisfactory and complaints have arisen in respect of some of them. The defects are:—

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- 1.—The tipping mechanism frequently gets out of order and an obstruction arises which often requires considerable excavation to free.
- 2.—The excreta are not flushed away from off the sides of the barrel between the seat and the tipper, which therefore becomes very foul.
- 3.—When sufficient water is not available, the town's water supply is likely to be wasted.

“Some owners of property have expressed their willingness to substitute fresh-water-closets, provided that the Urban Council make a reasonable contribution to the cost of the alteration. At present the Council has no permission from the Local Government Board to undertake such expense. On sanitary grounds, the use of these tipper closets cannot be defended, in hot weather they are practically offensive and malodorous.

“The almost complete abolition of privies and ashpits and the substitution of dustbins has considerably lightened the work of the refuse removal of previous years, but has, of course, not materially decreased the amount of dry refuse to be disposed of and necessitates the more frequent removal of the refuse from bins. Bins are emptied once or twice weekly according to circumstances. House refuse is disposed of by tipping into a deep quarry at the border of the Urban District in an area which is very thinly populated. Shop refuse is treated similarly, paper and other similar materials being burned on the site. Trades' refuse is not dealt with by the Sanitary Authority and street refuse is disposed of as manure.”

SANDBACH URBAN DISTRICT.—“A number of conversions have been carried out during the year and improvement in this accommodation is being well maintained. Forty-three privies have been converted to the pail system and 25 water-closets have been fixed. The number of different types of closets are now as follows :—

Water-closets	...	...	265
Pails	...	...	475
Earthenware cesspools	...	...	22
Privies	...	...	496

“This work is carried out by the Council's employees. The populated parts of the district outside the town are rather scattered over a large area. The outlying parts (Sandbach Heath, Coldmoss Heath, Ettiley Heath and Wheelock) render a

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constant systematic working of scavenging with our regular two carts and tubs somewhat difficult and it is occasionally necessary to hire an extra cart and nightsoil tub. Considerable improvement is being brought about in ashpit accommodation. Ninety-five ashbins have been provided throughout the year at the request of the Nuisance Inspector. The Grammar School has been provided with ashbins and Stafford Terrace, Coldmoss Heath (comprising 22 houses) has been similarly provided. The houses at East Elworth (15 in number) now also have ashbins. These ashbins are emptied weekly and there are about 316 in the district. The closets are also cleansed by the Council's workmen. As far as possible the work is carried out systematically in districts. Requisition forms are always available at the Town Hall for urgent cases. These forms are numbered and when filled up are entered on a list each day by the Inspector of Nuisances and the date when they are dealt with is recorded."

TARPORLEY URBAN DISTRICT.—"Scavenging is not carried out by the Local Authority, but by private arrangement; each householder, as a rule, disposing of his own refuse. Your Council provides tips. The approximate number of

Midden privies	...	...	178	
Dry ashpits	...	...	137	
Pail-closets	...	...	61	
Dustbins	...	...	0	
Cesspools	...	...	About 200	
Water-closets	...	...	115	
Number of conversions during						
	1909	1910	1911	1912	1913	
Privies fixed to movable receptacles	...	0	6	7	0	0
Privies with fixed receptacles to fresh-w.c.'s	...	8	6	10	14	20
Privies with fixed receptacles to waste-w.c.'s	...	0	0	0	0	0
Privies with movable receptacles to fresh-w.c.'s	...	0	0	0	0	0
Privies with moveable receptacles to waste-w.c.'s	...	0	0	0	0	0

"In Tarporley some of the privies were old and inadequate and your Council decided to have them converted into water-closets as early as possible; nine of these were converted during the year 1914. In the other townships, where there are old and dirty privies, pail-closets are being substituted, as most of the cottages have good gardens."

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WILMSLOW URBAN DISTRICT.—“There are approximately 789 water-closets and 738 ashpit privies. Twenty-seven privies were converted to water-closets during the year. The Council now undertakes the scavenging of the district. The dry refuse is put on farm land to fill up hollows and the nightsoil on bog and farm land to be used as manure. Fifty-three houses have had movable ashbins with proper covering substituted for fixed receptacles during the year.”

WINSFORD URBAN DISTRICT.—Mr. Hickson reports as follows :—

“The approximate number of water-closets now in use in the district is 1,071, an increase of 196 for the year ; 185 have been converted from privy-cesspools, two from peat-pail closets and nine have been provided to new houses built during the year.

“The number of peat-pails now in use is 514, a reduction of two for the year, due to conversions to fresh water-closets. The scavenging is performed by private contract and is carried out between the hours of 10 p.m. and six a.m. The pails are emptied, cleansed and re-charged with peat, dust and vitriol once each week, a clean pail being substituted at each house. The manure is taken to a depôt provided by the contractor, outside the district, and well removed from inhabited parts.

“The approximate number of privy-cesspools is 869, a reduction of 185 for the year, this number having been converted to fresh-water-closets during 1914. The scavenging is done by contract in the night-time, the manure being taken to outlying parts of the district. This type of closet is fast disappearing and in a few years will be replaced by the water-closet. The Council require the provision of water-closets to new house property.

“I would draw special attention to the very satisfactory nature of these figures and would remind you that the whole work has been done by voluntary arrangement and that in every case other and additional alterations and improvements to the premises have been effected at the same time.

“In addition to that mentioned above, the Surveyor is in charge of the scavenging of ashes. Dry ashpits are emptied monthly and covered ashbins fortnightly, the contents being deposited at tips provided, or sanctioned, by the Council. One hundred and twenty covered ashbins have been provided for houses which previously had no proper provision.”

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YEARDSLEY-CUM-WHALEY URBAN DISTRICT—"The district is mainly supplied by privies and ashpits and a few houses have pail-closets. These are all emptied at stated times and removed to the Council's tip. There are also a number of houses in the district which are provided with water-closets, and these, with a few exceptions, are connected with cesspools, whilst the majority drain ultimately into the River Goyt."

BUCKLOW RURAL DISTRICT.—"The following figures are as close an estimate as is possible in the absence of a house-register of the district. Privies, 1,130; pails, 670; cesspools, 1,000; water-closets, 2,755. There are no waste-water or hand-flushed closets. Conversions of privies into water-closets during year, 83.

"Scavenging remains as previously described. Movable ashbins were provided in all the cases of conversion."

Mr. Metcalfe (Inspector) adds:—

"The scavenging in Dunham Massey and Timperley has been carried out by the Council's own staff of workmen, and in Northenden and Mobberley by contract. The scavenging in Mobberley was commenced in April and is carried out by day work. The following is a return of the work done in each township during the year:—

	Dunham.	Timperley.	Northenden.	Mobberley.
Houses scavenged	8,407	13,894	9,126	281
Ash-pits emptied	606	905	247	155
Dust-bins emptied	9,831	11,663	8,029	10
Loads removed	866	1,191	483	81
Pails emptied	193	1,546	Nil	104

"The dust-bins in the Stonepail area of Northen Etchells are cleared every fortnight and the work is carried out by contract. With regard to Northenden I can only repeat on the lines of last year. The question of scavenging and disposal of refuse in this township has become a serious matter. There are practically no suitable places for tipping refuse and the question of a destructor has now to be considered. The present arrangement is both unsatisfactory and insanitary. The question should be taken into consideration at an early date, with a view to a destructor being erected near the sewage works of this township."

CHESTER RURAL DISTRICT.—"Scavenging is carried out by the Rural District Council as far as back passages are concerned

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in Great Boughton and Newton and privately. The refuse is removed weekly and fortnightly as occasion requires. There is no record of the number of midden-privies, dry ash pits, pail-closets, dust-bins, cesspools, in your district. The main roads through the villages are kept clean and swept when required. During the wet months in the late autumn it is very difficult to keep the roads free from mud, as the farmers are doing their carting off the fields, the soil being stiff, adheres to the cart wheels and simply plasters the roads as it falls off and if the roads are scraped one day it is as bad as ever the next."

DISLEY RURAL DISTRICT.—"The following is the approximate number of houses with—

Privy-middens.	Pail-closets.	Water-closets.
390	101	225

Number of houses converted from privy-middens to water-closets, 14. Number of houses converted from privy-middens to pail-closets, 18. Number of dustbins substituted for ashpits, 29. Scavenging is done by the Council. There are more than twice as many privy-middens and pail-closets as there are water-closets. There should be rapid conversion to the water carriage system when the sewerage for Furness Vale and Newtown is established."

MACCLESFIELD RURAL DISTRICT.—"No provision is made for the removal of house refuse or the cleansing of earth-closets, privies, cesspools, etc., such work being carried out privately. Five townships are provided with public tips."

MALPAS RURAL DISTRICT.—"The closet accommodation is, on the whole, satisfactory. There are about 150 water-closets in Malpas. Pail-closets are being introduced in different parts of the district when alterations are done. Fourteen improvements were made this year.

"Scavenging is not carried out by your Authority. Most of the houses in the district have ashpit-privies or midden-privies. These are emptied when required on to the land, each householder being responsible for the disposal of his own refuse. The approximate number of

(a) Midden-privies is	128
(b) Dry ashpits	„	...	40
(c) Pail-closets	„	...	217
(d) Dustbins	„	...	6
(e) Cesspools	„	...	570

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“The present system seems fairly adequate, but improvements are needed and midden-privies ought to be abolished—pail-closets and covered dustbins or ashbins substituted.”

NANTWICH RURAL DISTRICT.—The Inspector remarks :—“The refuse and nightsoil are systematically removed from the vicinity of houses and disposed of in such a manner as to avoid nuisance or danger to the public health. In the villages of Audlem, Copenhall, Haslington and Shavington-cum-Gresty the work is done by public contract. In the Willaston and Wistaston villages the scavenging is done by your own employees under my supervision. Parts of the village of Wybunbury and Broad Lane, Stapeley, would be decidedly improved by similar treatment.”

NORTHWICH RURAL DISTRICT.—“In two townships the water carriage system is in operation and removal of house refuse is done by contract. In 10 other townships the whole of the scavenging is let to contractors and by their agreements pails are cleansed weekly, ashbins fortnightly and ashpits monthly. These matters are attended to very carefully and there are no privy-middens in the area. Extensions are carried out as occasion requires.”

The Inspector remarks :—“Scavenging contracts are in operation in 12 townships, in two of which, being on the water carriage system, removal of house refuse only is provided for. The pails are cleansed weekly, ashbins fortnightly and ashpits monthly. Two hundred and thirty new pails and covers have been supplied to the contractors during the year to replace the losses and $9\frac{1}{2}$ tons carbolic disinfecting powder distributed for purposes of disinfection.”

RUNCORN RURAL DISTRICT.—“It is impossible for me to give the actual figures, but I may state broadly that the policy of your Council has been—

- (a) To sanction existing privies, with or without ashpits, or to adopt the pail system in suitable cases, in all townships which have no public water supply nor sewerage scheme ; and—
- (b) In townships where a public water supply exists and where also a sewerage scheme is provided to gradually or rapidly abolish the old privy system and adopt the ‘ water-carriage ’ system of sewerage instead.

“For the last four years considerable activity in this regard has been manifest ; thus in 1911, 60 privies were converted to

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water-closets; and 15 new water-closets provided in lieu of common privies, making 75 water-closets in all; and in 1912, 77 privies were converted to water-closets; and 40 new water-closets provided in lieu of common privies, making 117 water-closets in all; in 1913, 97 privies were converted to water-closets; and 50 new water-closets were provided in lieu of common privies, making 147 water-closets in all; in 1914, 78 privies were converted to water-closets and 12 new water-closets were added to property, making 90 new water-closets in all for 1914, or a total of 429 water-closets hitherto provided during the past four years, under the Housing and Town Planning Act, 1909.

“There is no systematic arrangement applicable to the whole district for either house refuse or for cleansing of closets, ashpits or cesspools. In Stockton Heath this work is carried out by a contractor: in Weston and Weston Point where the conversion of privies is sufficiently advanced, the township itself now undertakes these duties, having negotiated a contract for them; and Halton has carried out a similar scheme for a portion of the parish. Where closet refuse can be taken away from ashpit refuse this should be done in all cases. During 1914, Latchford Without arranged a contract for removal of night-soil and refuse. The general arrangements for the rest of the district might, with advantage, be considered and revised by your Council, as I feel convinced that considerable improvement might result from your deliberations.”

TARVIN RURAL DISTRICT.—“House to house scavenging is not carried out by your Authority. House refuse such as ashes is carted away by farmers for repairing their gateways and the scavenging of closets is done by the occupier, the contents being used or buried in the gardens. The roads are regularly swept clean, especially the main roads through the villages, these being chiefly made of tar-mac. Approximately there are about

1,600 Midden privies.

1,200 Dry ashpits.

1,000 Pail closets (emptied weekly).

No record of dustbins.

780 Cesspools.

“There are too many midden-privies in your district. These are being condemned and the pail-closet system introduced whenever opportunity offers: about 100 have been converted this year.”

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WIRRAL RURAL DISTRICT.—“Newer residences have water-closets and in many instances their own sewage purification installations. Closets draining to cesspools are common and the older cottages far from any sewer, have privy middens, the contents of which are utilised for manurial purposes. The substitution of water-closets for the old privy middens is going on slowly.

“In eight of the townships the removal of house refuse is undertaken by contractors, who are required to remove it at short intervals. The Council do not empty cesspools, but make the tenants fulfil this duty, with the result that the work is badly done and where the sanitary rate is exacted they feel that they have a grievance. The rubbish tips are on agricultural land far enough away from houses to obviate direct nuisance and the contractor has instructions to burn all waste which would otherwise blow about and create a nuisance.

Section XII.—Housing.

The Housing (Inspection of District) Regulations are being efficiently carried out by the great majority of Local Authorities and the necessary remedies are being effectively applied. In some few areas the annual number of inspections is not so great as it should be and I am recommending the application of the spur in the case of a few of the Local Authorities concerned.

Take the case of the Bollington Urban District where there are said to be 1,114 houses within the limits of rental fixed by the Act of 1909 and therefore calling for inspection: we find that only 40 such houses were inspected during the year 1914. In Hoylake and West Kirby Urban District there are, it is estimated, 855 houses within the aforesaid limits and 36 houses were inspected during 1914. In the case of Knutsford only 23 such houses were inspected out of a total of 730 within the said limits. In the case of Neston and Parkgate Urban District only 24 houses were inspected during 1914 out of a total of 674 calling for inspection. In Disley Rural District 45 out of 605, in Tintwistle Rural District 21 out of 442. There may be adequate excuse for this but some explanation appears requisite.

Table giving statistics of housing inspections, &c., in the several districts of the County during 1914.

	Houses within limits of rental of Section 14 Act of 1909.	No. of such houses in respect of which notice was served.	No. of such houses closed after notice.	No. of houses inspected under Section 17 during 1913.
MUNICIPAL BOROUGHs—				
Congleton ...	2535	—	—	56
Crewe ...	9147	119	—	240
Dukinfield ...	4419	107	—	386
Hyde ...	7494	355	5	106
Macclesfield ...	5500	565	—	1046
Stalybridge ...	5960	75	—	1038
OTHER URBAN DISTRICTS—				
Alderley Edge ...	275	—	—	24
Alsager ...	350	—	—	10
Altrincham ...	—	No figures given		—
Ashton-upon-Mersey ...	1010	142	—	236
Higher Bebington ..	193	28	—	46
Lower Bebington ...	1739	8	—	32
Bollington ...	144	30	—	40
Bowdon ...	200	—	—	6
Bredbury & Romiley ...	1340	68	—	212
Bromborough ...	260	12	—	209
Buglawton ...	296	26	—	37
Cheadle & Gatley ...	1361	—	—	240
Compstall ...	No figures.		—	12
Ellesmere Port & Whitby	471	—	—	162
Hale ...	567	70	—	597
Handforth ...	144	—	—	—
Hazel Grove & Bramhall	1436	53	—	580
Hollingworth ...	669	—	—	60
Hoole ...	545	38	—	150
Hoylake & West Kirby ...	855	36	—	36
Knutsford ...	732	5	—	23
Lymm ...	700	116	—	88
Marple ...	122	80	—	134
Middlewich ...	973	—	—	34
Mottram ...	730	—	—	16
Nantwich ...	1296	—	—	41
Neston & Parkgate ...	674	24	—	24
Northwich ...	3560	10	7	96
Runcorn ...	Not obtained.		—	543
Sale ...	2020	42	—	750
Sandbach ..	1913	7	—	62
Tarporley ...	356	25	—	100
Wilmslow ...	1282	46	—	172
Winsford ...	2200	206	—	206
Yeardsley-cum-Whaley ...	314	—	—	—
RURAL DISTRICTS—				
Bucklow ...	3120	170	3	247
Chester ...	1590	—	—	154
Congleton ...	2283	57	—	313
Disley ...	605	36	—	61
Macclesfield ..	3200	233	—	619
Malpas ...	873	26	—	49
Nantwich ...	139	64	—	139
Northwich ...	4382	143	1	329
Runcorn ...	5683	345	—	1224
Tarvin ...	1750	13	—	100
Tintwistle ...	442	13	—	21
Wirral ..	2238	No figures given		—

HOUSING.

It is probably not known by most people that the housing of the 'impotent poor' was one of the outstanding functions entrusted to the churchwardens and 'substantial householders' of the parish in the reign of Elizabeth. In 1598 it was enacted that these representatives of power 'to erect in fit and convenient places by the leave of the lord or lords of the manor whereof any waste or common within their parish is parcel, at the general charges of the parish or otherwise of the hundred or county . . . convenient houses of dwelling for the said impotent poor.' (Statutes of the Realm IV., Part II). It has been a very long time—roughly 300 years—for the principle thus enunciated to find expression in the erection of houses for the working classes at the expense of Local Authorities.

The appended remarks of the District Medical Officers of Health and Inspectors are well worthy of consideration:—

CONGLETON MUNICIPAL BOROUGH.—“The following is a list of improvements effected in the year:—

Number of inspections made	...	...	...	56
„ of dwelling houses which on inspection were considered so dangerous to health as to be unfit for human habitation	...	...	...	5
„ of representations made to the Local Authority with a view to making closing orders	...	...	...	1
„ of closing orders made	...	...	...	1
„ of dwelling-houses, the defects in which were removed without closing orders	...	...	...	39
„ of houses in process of being made habitable	...	...	...	0
„ houses demolished	...	...	...	0
„ leaving to be dealt with	...	...	...	10

“There was not anything done during the year to relieve the overcrowding from shortage of houses drawn attention to in the last two annual reports.”

CREWE MUNICIPAL BOROUGH.—“The Assistant Overseer (Mr. A. Maywhort) has kindly allowed me to obtain from the rate books the following information with regard to dwelling houses, as recorded on June 30th, 1914:—

Houses.	Number Occupied.	Number Empty.	Total No. of Houses.
Rated at £16 and under ...	9086	98	9184
Rated over £16 ...	1250	16	1266
Total ...	10336	114	10450

“This classification on rateable value has been followed to afford information called for under the Housing and Town Planning Act.

“The following figures denote the percentage of empty houses to total houses on the rate books on June 30th each year:—

Average for 16 years (1895-1911)	...	3.14
Percentage in 1912 ...	...	4.5
Percentage in 1913 ...	...	2.9
Percentage in 1914 ...	...	1.09

“The Borough Surveyor (Mr. George Eaton-Shore) has been good enough to give me the following figures as to plans passed and habitation certificates granted:—

	Plans.	Habitation Certificates.
Average yearly No. 1891-1900 ...	263	268 (3 years only)
„ „ 1901-1910 ...	148	141
Number in 1911 ...	33	28
„ 1912 ...	19	16
„ 1913 ...	13	13
„ 1914 ...	*39	37

* This includes 2 shop premises.

“There are 10,450 dwelling-houses in the borough. Of these 9,158 are within the limit of rent applicable to the district under Section 14 of the Act, as seen in a previous table.

“The number of dwelling-houses inspected during the year, under and for the purpose of Section 17 of the Act of 1909, was 240.

HOUSING.

“The following Tables shew the action taken with regard to this number.

TABLE I.

Houses unfit for Habitation—None.

No. Inspected.	Representations to Local Authority.	Closing Orders made.	No. Remedied without Closing Orders being made.	No. put in fit state for habitation after closing	No. Demolished.
240	0	0	91	0	0

TABLE II.

No. of Houses.	No. in good condition.	No. for which Notices Served.		No. remedied.	No. being remedied.	No. Nothing done.
		Informal.	Statutory.			
Inspected where Section 15 applied } 208	84	119	5	87	37	0
Inspected where Section 17 applied } 32	28	4	0	4	0	0
Totals 240	122	123	5	91	37	0

* Notices under Sections 46 and 94, Public Health Act, 1875.

“In carrying out these inspections much valuable information was collected with reference to the housing conditions in the borough, of which the following abstract will be useful and instructive:—

The rentals paid:—

Per Week.	2/6	2/9	3/3	3/4	3/6	3/8	3/9	3/10	3/11	4/-	4/3	4/5	4/6
No.	2	28	8	1	30	9	23	8	10	32	6	6	13

4/9	5/-	5/3	5/5	5/6	5/9	6/-	6/3	6/6	6/8	7/-	7/3	7/4	7/6 and Over.	Total.
2	5	2	1	6	2	17	4	7	1	3	7	1	9	240

Bedroom Accommodation:—

- 131 Houses with two bedrooms.
- 94 Houses with three bedrooms.
- 8 Houses with three bedrooms and a bath.
- 3 Houses with four bedrooms.
- 3 Houses with four bedrooms and a bath.
- 1 House with six bedrooms and bath.

240

Fireplaces in bedrooms:—

- 107 Houses with fireplace in front and middle bedroom.
- 75 Houses with fireplace in front and back bedroom.
- 52 Houses with fireplace in front bedroom only.
- 6 Houses with fireplace in three or more bedrooms.

240

Ventilation of houses:—

- All 'through' houses.

Lighting:—

- Window in each room.

Damp-proof courses in walls:—

- 72 Houses had damp-proof courses.
- 168 Houses had no damp-proof course evident

Dampness:—

- 86 Houses showed evidence of dampness.

Types of sanitary conveniences:—

- 73 Houses had water-closets.
- 114 Houses had pail closets.
- 53 Houses had waste-water-closets.

Types of receptacles for house refuse:—

- 184 Dustbins.
- 56 Ashpits.

Types of yard:—

- 240 Houses had separate yards.

Yard paving:—

- 78 Yards were paved.
- 162 Yards were part paved.

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Back passages:—

130 Houses abutted upon paved passages.

103 Houses abutted upon unpaved passages.

7 Houses detached, etc.

Drainage:—

All drain inlets were trapped with suitable gullies.

“The pointing of exterior walls, re-plastering of internal walls and ceilings, repairs to roofs, floors and the re-paving of yards up to the 150 square feet required under the Bye-laws for new property and enforced under the Public Health Amendment Act, 1907, in old property, together with the general cleansing to walls, floors, etc., effected, have all contributed to improve the houses dealt with and make them healthier dwellings. It is a cause of considerable satisfaction for one to be able to report that all the property owners concerned have had the work required done, without it being necessary in any instance to take legal proceedings to enforce the orders and notices.

“In last year's report I had occasion to emphasise the need for the prevention of dampness in new houses. To accomplish this certain alterations are required in these Bye-laws that deal with sub-soil drainage. In my opinion sub-soil drainage of all sites for dwelling-houses is most essential, when one takes into account the local geological, meteorological and topographical features of the borough. Further the method by which the land drainage is effected has much to do with a good result. The land drains should be laid in clinker and the trenches filled almost to the surface with the same material. Land drains which are merely put into shallow trenches and then covered with clay are soon put out of action by blockage, while at the same time they give a false sense of security and freedom from damp. No dwelling-house should be erected, or plans for same accepted by the Local Authority, unless provision is made for adequate ventilation beneath all floors on the ground floor of each house. The foundations should be sufficiently high to raise the whole house at least one foot above the level of the site.

“There were only 114 houses empty in the town in the middle of the year, or only 1.09 per cent. of the total number. When this figure is compared with the number of marriages in the borough, the insufficiency of the present housing accommodation is evident, for there were 114 empty houses and 332 marriages. Even supposing that one-third of the newly

married couples do not come to live in Crewe, the accommodation available for the remainder is entirely inadequate. The Local Authority should give this question careful attention and encourage private enterprise to increase the houses in the borough. Failing this, the question will become so acute that the Authority must take it in hand.

"Ten cases of overcrowding were found as result of complaints. An informal notice was complied with in each case.

"There are 59 back-to-back houses in the borough. Most of them are in blocks of four with ample ground space around them. Six were demolished during the year. There are no cellar dwellings in the town."

DUKINFIELD MUNICIPAL BOROUGH.—"The house accommodation, owing to the scarcity of new buildings in recent years, is not sufficient. Much of the worst property has been demolished or remains unoccupied and very few houses have been built to replace them. The majority of the people in the town belong to the working-class and from 1906 to 1911 excellent cottage houses were built, fitted with modern sanitary arrangements and conveniences and with plenty of air-space. The number of plans submitted and passed for new houses during the year 1914 has only been two, compared with eight in 1913 and five in 1912 and compares unfavourably with previous years, viz.:—30 in 1911, 40 in 1910, 50 in 1908, 61 in 1907, 61 in 1906 and 24 in 1905. In every case the drains are thoroughly tested by the Surveyor and strict supervision is taken by him as regards structure and air-space and fitness for habitation. No action has been taken under the 'Housing of the Working Classes Act, 1900,' as there are no common lodging-houses in the district, but much work has been done under the Town Planning Act.

"The average number of inhabitants per house occupied was only 4.19 in census 1911 compared with 4.48 in 1901. A few cases of overcrowding due to insufficient house accommodation have been reported and dealt with during the year. We have a complete list of four-roomed houses where eight and upwards are living and the Inspector is very assiduous in tactfully altering matters where practicable. We have a list of back-to-back houses and the worst class of property is kept under careful and periodical inspection and improvements and alterations are insisted upon being done when necessary. Overcrowding is carefully watched and the condition of the poorer and neglected children reported upon to the Inspector of the Prevention of Cruelty to Children Society.

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“What is now known as ‘housing work’ may, for the purpose of this report, be defined as work under the provisions of the Housing Acts, principally the Housing (Town Planning, &c.) Acts of 1909, but often in conjunction with the powers contained in the various Public Health Acts and Amendment Acts. A house when inspected under the Housing Acts is viewed from all standpoints as to its general fitness for human habitation. It is work which requires much time and careful investigation. During the year 386 houses were specially inspected under the Housing (Town Planning) Act, 1909 and in no instance was a house found to be incapable of being rendered fit for human habitation. No less than 277 houses were so improved during the year as to be considered in all respects reasonably fit for human habitation and in several instances the owners have, on invitation, attended before the Committee and by mutual agreement arranged to carry out the necessary alterations.

“As families grow up it follows that more sleeping accommodation is required. It is not so much a question of cubic space as of morals and occupiers complain that they are unable to obtain houses with three bedrooms at a reasonable rent, so they have to remain where they are. The worst feature of this difficulty is that it appears likely to continue. Only one new house has been built during the year 1914, eight were built in the year 1913, five in the year 1912 and few, if any, houses are being erected which will meet the needs of these people.

“The chief defects met with in local houses are (1) dampness, due to the absence of damp-proof courses, (2) absence of proper places to store food, (3) defective roofs and damp floors, (4) windows which are unable to be opened, (5) defective drainage and sanitary conveniences and unpaved yards.”

HYDE MUNICIPAL BOROUGH.—“The following tabular statement shows the number of houses inspected, notices served and alterations and improvements made during the year:—

Number of houses inspected within the meaning of section 17 ...	...	...	...	...	106
Representations made to Local Authority ...	...	...	...	...	5
Number of closing orders made by the Local Authority...	...	...	...	...	5
„ „ Houses where defects were remedied after closing orders were made ...	...	...	...	...	16
„ „ Houses where defects were remedied without closing orders being made ...	...	...	...	...	5
„ Demolished after closing orders made ...	...	...	...	...	0
„ Closed after closing orders made ...	...	...	...	...	0

“Detailed statement of defects found in houses inspected and in which action was taken under provisions of the Housing and Town Planning Act:—3, Back Wrigley Street, sash windows put in pantry and at top of stairs; 1, Lily Street, Gee Cross, ceiling ventilator put in large bedroom, also ventilators over fireplace and sink; 16, Edward Street, ceiling ventilator and ridge tile ventilator over staircase, bulkhead removed from top of stairs; 1 Barrett Court, five extra windows put in; 2, Barrett Court, four extra windows put in; 23, Oldham street, three extra windows put in; 26, Mottram Old Road, back door put in; 4, Shawcross Street, back door put in; 32 and 36, King Street, uncovered ashpit demolished and ashbins provided; 143 to 149 Great Norbury Street, uncovered ashpit demolished and ashbins provided; 13 to 15, Catherine Street, uncovered ashpit demolished, ashbins substituted and additional water-closets erected; 177 to 183, George Street and 10, Catherine Street, uncovered ashpit demolished, ashbins substituted and additional water-closet erected; 173 and 175, George Street, ashpit demolished, ashbins substituted and additional water-closet erected.

“The housing accommodation in the borough is, generally speaking, good. The houses are brick built, self-contained and all have a back yard and sanitary conveniences. Complaints have been received as to the insufficiency of houses with bath accommodation within the limits of rent in Section 14 of the Act of 1909. The shortage of houses of this class is probably well founded. Forty-five new houses have been certified fit for habitation during the year, 39 of which were within the limits of rent in Section 14 of the Act of 1909.”

STALYBRIDGE MUNICIPAL BOROUGH.—“Local Authorities are now required to provide for a thorough inspection of such dwellings as are not in all respects reasonably fit for human habitation with a view to proceeding either under Sections 14 and 15 of the Act of 1909 to enforce the improvement of the dwellings and the maintenance of them in a satisfactory condition, or under Section 17 to issue closing orders prohibiting the tenancy of dwellings declared to be unfit for human habitation.

“A thorough and systematic inspection of the whole of the borough is steadily being carried out by the Sanitary Inspector and his assistant. Details of every dwelling are being recorded and will be readily accessible. But besides this systematic inspection, all places where a nuisance is suspected or reported to exist are also dealt with, wherever occur-

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ing in the borough, by the Sanitary Inspector or by the Lady Health Visitor, who herself holds a Sanitary Inspector's Certificate. Any matters which require my attention are duly brought to my notice and I advise thereon after making a personal investigation and inspection along with the Sanitary Inspector and, if requisite, with the Borough Surveyor as well. It is only to be expected that in an old town like ours there will be many dwellings which through unsatisfactory situation and surroundings, defective and improper construction, or neglect of reasonable repairs and cleanliness, have in course of time become very unsuitable homes for human beings. In some parts of the town the natural conformation of the land in the way of sudden depressions and elevations has contributed to the erection of dwellings which, judged according to modern requirements in sanitation must be considered most unsatisfactory and it is no easy matter to determine what is the best course of action to adopt in order to improve such dwellings. There are also numerous cases of overcrowding with which it is difficult to deal until we get improved housing accommodation.

"During the year 1,038 dwellings have been carefully inspected and reported upon, 40 of them being represented as unfit for human habitation. Besides these, 154 dwellings were inspected and notices under the Public Health Act were served for various repairs and alterations.

TABULAR STATEMENT OF INSPECTIONS.

Number of houses inspected	...	...	1,038
Houses represented as unfit for habitation	...	...	40
Closing orders made by Local Authority	...	...	25
Closing orders became operative	...	...	25
Defects remedied without closing order	...	...	0
Defects remedied after closing order	...	...	0
Closing orders determined	...	...	15
Order to execute works under Sec. 15	...	...	44
Work executed under Sec. 15	...	...	work in progress.

The Inspector reports:—"House-to-house inspection as required by Section 17 of the Housing, Town Planning Act, 1909, has been systematically carried out during the year, partly in Dukinfield and Stayley Wards. 1,038 houses were duly inspected and particulars recorded. Informal notices were sent to the owners of 44 houses where defects were found. The defects included dampness in some part of the house; defective roofs, window frames, spouting, floor surfaces; insufficient light and ventilation; unsatisfactory drainage,

yard surfaces and other minor matters requiring attention. Also 40 other houses were inspected and reported upon as unfit for human habitation."

ALTRINCHAM URBAN DISTRICT.—"The inspection of the District under the Housing (Inspection of District) Regulations, 1910, has been carried out under my direction by the Inspector of Nuisances. The total number of dwelling-houses inspected to date, under Section 15 of the Act, is 1,272. During the year, 214 houses have been inspected and defects reported at 88 houses. At 46 houses the defects have been remedied. The general character of the defects observed consist of—damaged flooring, defective yard paving, broken plaster on walls, no through ventilation and minor structural defects, as well as the necessity for a large amount of internal decoration of walls and ceilings. A scheme which was prepared by the Surveyor for dealing with the requirements at the rear of Nos. 157 and 167, Manchester Road and Nos. 16, 17 and 18, Dale Square, which had been approved by the Council, has now been carried to completion and a most admirable alteration has been effected. Also a considerable improvement has been effected by the demolition of a number of houses in Back Moss Lane and the remodelling of the neighbouring premises.

"During the year the number of houses inspected under Section 17 of the Act was 28, which were found to be unfit for human habitation. A closing order has been made in each case. In the Police Street area, about which an Inquiry was held by the Local Government Board, notices of demolition in connection with the whole of the 14 houses which were considered unfit for habitation expired on the 5th November and the work is to be proceeded with forthwith. The only cellar dwellings in the town (New Street) which were also the subject of an Inquiry, will all shortly cease to be used as dwellings, the owners having agreed to this course at the instance of the Council.

"Throughout the year, the question of extending the provision of small houses for the working classes has engaged the serious attention of the Council and the difficulty so far has been the provision of a suitable site for the erection of workmen's cottages. The sites considered have been as follows:—

- 1.—The old hospital site in Lloyd Street.
- 2.—A plot of land in Urban Road, near the present housing estate.
- 3.—A plot of land in Oakfield Road, already belonging to the Council.
- 4.—An estate of 10 acres on the north side of the district.

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“Negotiations are now pending between the Council and the owners of the last-mentioned estate and I understand that the settlement of the question is shortly to be decided by the Council. The Council are proceeding with the erection of dwelling-houses under the Housing Acts and there are at present in occupation 25 five-roomed cottages, which let at a rental of 6/6 per week ; eight four-roomed cottages at 5/6 per week ; 22 four-roomed cottages at 4/9 per week ; 24 two-roomed cottage flats at 3/6 per week and four two-roomed cottage flats at 3/- per week. There are in course of erection three cottages of four rooms, two of which rooms are bedrooms. The planning of the cottages has had special consideration and allowance has been made for abundant open space and ventilation.”

The Inspector reports :—“The total number of houses inspected to date under Section 15 of the Act, is 1,272. Of the 75 outstanding defects at the end of last year, 22 have since been remedied. During the year, 214 houses have been inspected and defects reported at 88 houses. At 24 houses the defects have been remedied. In the majority of the remaining cases, the work has been left over with the consent of the Council, pending other proposed improvements and alterations being carried out. The general character of the defects observed consists of—damaged flooring, defective yard paving and minor structural defects, as well as the necessity for a large amount of internal decoration of walls and ceilings.”

ASHTON-UPON-MERSEY URBAN DISTRICT.—“The district not having any industries confirms me in my opinion that there is no necessity for any scheme to be undertaken by the Council for the provision of houses for the working classes. There is no demand for houses of this class. With respect to the closing orders referred to in my last annual report, six of these have now been determined, alterations having been carried out by the respective owners to satisfy the Council’s requirements. In four of the remaining five cases the owner is deferring alterations until a more opportune time. No further representations for closing orders having been made to the Council during the year.

“During the year 236 houses have been examined, bringing the total number inspected up to 623. The general character of the houses visited has been good and the following is a list of the repairs that required attention :—

Insanitary closet accommodation	...	154
Dampness to walls	...	27
Insanitary yard surfaces	...	47

Defective gutters and rain water fall pipes...	9
Untrapped rain water fall pipes ...	20
Defective waste pipes ...	14
Repairs to w.c.'s and ashpits ...	6
Defective drains and gullies ...	21
To cleanse houses ...	2
Defective roofs ...	3

“In the majority of cases informal notices sufficed, only in nine cases was it found necessary to serve statutory notices.”

HIGHER BEBINGTON URBAN DISTRICT.—“Under the Housing and Town Planning Act, 1909, the work done is shewn in the following statement:—

Number of new houses built during 1914 ...	1
Number of dwelling-houses inspected under Section 17, Act of 1909 ..	46
Number of houses considered unfit for habitation ...	0
Number of representations made to Local Authority ...	0
Number of closing orders made by Local Authority ...	0
Number of houses where defects remedied without closing orders being made ...	18 and 10 work in progress
Number of houses where defects remedied after closing orders made ...	0
Estimated or ascertained number of houses within limits of rent in Section 14 of Act of 1909 ...	193
Number of such houses in respect of which notice was served during 1914 ...	28
Number of such houses closed after notice ...	0
Number of such houses where Local Authority has executed necessary repairs, &c. ...	0
Approximate number of back-to-back houses in district ...	0
Approximate number of cellar-dwellings in district ...	0

“There are few empty houses in the district and although there are plenty of building sites available, no houses are in process of erection.”

LOWER BEBINGTON URBAN DISTRICT.—“The housing scheme during the early months of 1914 received the close attention of a special committee. The Council, who had considered this scheme from various standpoints, immediately after the outbreak of war, came to the conclusion that owing to the uncertainty of building prices, which resulted in a very large increase in the cost of building and the fact that a very large number of residents had offered

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themselves as recruits for the Army, it was desirable to postpone further consideration until the war was over and the Law Clerk has written to the Local Government Board to this effect.

Number of houses built in Port Sunlight	...	...	22
„ „ „ Lower Bebington	...	...	35
			—
			57

One public building built in Lower Bebington.

Number of dwelling-houses inspected under S. 17, Act of 1909	...	...	...	32
Number of such houses considered unfit for habitation	...	...	...	0
Number of representations made to Local Authority	...	...	...	8
Number of closing orders made by Local Authority	...	...	...	0
Number of houses where defects remedied <i>without</i> closing orders being made	...	...	...	40
Number of houses where defects remedied <i>after</i> closing orders made	...	...	...	0
Estimated or ascertained number of houses within limits of rent in S. 14 of Act of 1909	...	...	...	1739
Number of such houses in respect of which notice was served	...	...	...	8
Number of such houses closed after notice	...	...	...	0
Number of such houses where Local Authority has executed necessary repairs, etc.	...	...	...	0
Number of back-to-back houses in district	...	...	...	2
Number of cellar dwellings in district	...	...	...	0

“The defects found consisted chiefly of dampness, deficient ventilation, broken tile floors, walls covered with several dirty papers, sink waste-pipes too short and dirty houses.”

BOLLINGTON URBAN DISTRICT.—“The census shewed that there were 1,212 inhabited houses. Four new houses have been built during the past year, making with ten new ones during the intervening years a total now of 1226 inhabited houses. The number of houses still vacant at the end of the year was reduced to 12. The Housing Committee has been engaged endeavouring to find a site for the erection of workmen’s cottages and lately has had under its consideration the offer of purchase of Rock Bank House with its adjoining land. This would make an excellent site for such cottages, but owing to the small likelihood of obtaining a Government loan in the present circumstances the matter has been allowed to drop for the time being.

“The following are the particulars required by the Local Government Board under Article V. of the Housing (Inspection of District) Regulations, 1910 :—

Number of new houses built during 1913	...	...	4
Number of dwelling-houses inspected under S. 17, Act 1909			40
Number of such houses considered unfit for habitation	...		5
Number of representations made to Local Authority	...		None
Number of closing orders made by Local Authority	...		None
Number of houses where defects remedied without closing orders being made. Work in hand but not completed at end of year	...	...	5
Number of houses where defects remedied after closing orders made	...	...	None
Estimated or ascertained number of houses within limits of rent in S. 14 of Act, 1909	...	...	1114
Number of such houses in respect of which notice was served during 1913	...	...	30
Number of such houses closed after notice	...	...	None
Number of such houses where Local Authority has executed necessary repairs, &c.	...	...	None
Approximate number of back-to-back houses in district	...		6
Approximate number of cellar dwellings in district	...		None

"The houses are for the most part built of stone or stone and rubble and have no damp-proof courses and are in many cases in consequence damp. Attention has been called in previous reports to a certain class of house which has been built up against the side of the hill. The work of clearing the earth away from the back of such houses has been persevered with, though not all have yet been completed. The greater number of these older houses consist of only four rooms, two up and two down, though a few have three bedrooms. Houses built in recent years are of brick or brick and stone frontages and have damp-proof courses. These all have at least six rooms and some few a bathroom in addition. Plans of all proposed new buildings are required to be submitted in duplicate to the Surveyor, who examines them and passes them on for approval, if in accordance with the Bye-laws, to the Highway Committee. If the plans are not in accordance with the Bye-laws, they are returned to the builder for alteration."

BOWDON URBAN DISTRICT.—"The housing accommodation in Bowdon is excellent. During the last two years 690 inspections have been made ; none of the houses were found unfit for habitation and therefore none were closed. There are no cellar dwellings, or back-to-back houses in Bowdon. No representations were made to the Authorities for orders to close any houses. There were 22 defects in houses remedied by order of the Authorities during the year. The defects found and remedied were untrapped downspouts

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defective walls and paving of yards, defective downspouts and gutters, non-ventilation of drains. The housing inspection has caused many defects to be remedied and outstanding informal notices are being dealt with."

BREDBURY AND ROMILEY URBAN DISTRICT.—"The Assistant Sanitary Inspector has made inspections of 212 houses during the year and 68 notices have been served in connection with these inspections."

BROMBOROUGH URBAN DISTRICT.—"Eight semi-detached houses have been built during 1914. There are no empty cottages and nearly all the working-class dwellings are modern and well constructed, any which do not come within this category have been kept under constant supervision during the year. The inspector's tabular statement shews a total of 499 general inspections made, 205 of these were under Section 17 of 1909 Act, in connection with which two statutory notices and 10 informal notices were served, six of them having been complied with. Four houses in the district are considered unfit for human habitation, one is used as a room for boy scouts, one for a chipped potato shop and one for a farmyard bothy; the other is closed altogether.

Group of cottages in the district	...	50 of 2 cottages	
"	"	"	...
"	"	"	...
"	"	"	...
"	"	"	...
"	"	"	...
"	"	"	...
Number of dwelling-houses inspected under Section 17,			
Act of 1909	...	...	209
Number of such houses considered unfit for habitation	...		4
		(empty for a long period.)	
Number of representations made to Local Authority,			
Section 15	...	...	205
Number of closing orders made by Local Authority	...		0
Number of houses where defects remedied without closing			
orders being made	...	...	199
		(proceeding.)	
Number of houses where defects remedied after closing			
orders made	...	...	0
Estimated or ascertained number of houses within the			
limits of rent in Section 14, Act of 1909	...		260
Number of such houses in respect of which notice was			
served during 1914	...	...	12
Number of such houses closed after notice	...	...	0

BUGLAWTON URBAN DISTRICT.—The following table shows the work done during 1914 :—

Number of inspections made	...	...	...	37
Number of dwelling-houses, which, on inspection, were considered to be in a state so injurious to health as to be unfit for human habitation	...	...	...	2
Number of representations made to the Local Authority with a view to making closing orders	...	...	...	2
Number of closing orders made...	...	...	...	0
Number of dwelling-houses, the defects in which were remedied without making closing orders	...	...	...	12
Number of houses in process of being made habitable	...	...	...	5
Leaving to be dealt with	...	...	...	20

“The general character of the defects found were defective drainage, dampness from defective roofs or spouting, untrapped drains, defective or unsuitable sanitary accommodation, unpaved yards, or yards in bad condition. Much difficulty was experienced in getting owners to pave yards, most of which are large, owing to the recent great rise in the price of material and the Inspector finding the difficulty to be so great, consulted you on the subject, when it was decided that the work must be done and notice given to that effect. With regard to the defective sanitary accommodation, you contemplated substituting pail closets for all the existing midden privies. The Medical Officer, on learning of your intention, suggested that, in view of the water supply of the district being shortly largely increased, the matter should be delayed for a time, to see whether it would be possible to adopt the water-closet system, for although the pail might be better than the midden privies, it was by no means a perfect system and could only be worked at very considerable expense and you adopted his suggestion.”

CHEADLE AND GATLEY URBAN DISTRICT.—“I have in my annual reports remarked on the scarcity of cottages in the Cheadle Hulme Wards. In 1911 the Local Government Board made enquiries as to what your Council were doing in the matter. A Sub-Committee was formed and after making enquiries reported that there was in their opinion a sufficiency of cottages. This does not seem to be the general opinion. One reason I think that makes cottages scarce is that very many of them are occupied by families whose members work in Manchester or the neighbouring towns. I have with your Inspector made a very careful and thorough inspection of all the cottages which come under the Town Housing Acts in both Wards and am still of an opinion that more ought to be built.

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“There are in both Wards 313 cottages, the rental of which is under seven shillings a week, of these

- 21 Cottages are under seven shillings and over six shillings.
- 51 Cottages are under six shillings.
- 136 Cottages are under five shillings.
- 90 Cottages under four shillings.
- 15 Cottages under three shillings.

“The majority of the cottages are situated in five streets or roads:—

- Wilmslow Road, 58.
- Hulme Hall Road, 36.
- Ladybridge Road, 33.
- Grove Lane, 25
- Ravenoak Road, 22.

“The majority of these cottages we found on inspection were clean, well lighted and with a good yard space behind. There were some that were in such a bad state of repair that if there had been other cottages into which the occupiers could have gone the occupiers would have voluntarily left them, or we should have applied for a closing order until the necessary repairs had been done. The rents of the cottages taken as a whole are not high, 292 out of the 313 being under six shillings a week and this is I think one reason why so many families come from the neighbouring towns. As Cheadle Hulme is rapidly growing as a residential suburb, especially in the South Ward, there is a corresponding increase in the amount of employment and the difficulty in finding suitable house accommodation for the people thus employed increases. Several instances of men with families wanting to live in Cheadle Hulme, as their work is there and not being able to get house accommodation, have been brought to my notice recently. As regards the situation for cottages, if any are to be erected in my opinion would be somewhere in the neighbourhood of Smithy Green, as the main residential part of the district is near here and it is as near as possible to the village and schools and as regards the number required I should say from about 20 to 50. In conclusion I might say that as far as I know there is hardly one empty cottage in the whole of the district at the present time.

“Housing inspections have been made in Cheadle and Cheadle Hulme North and South Wards. During the year 240 houses were inspected. The following shews the work done

during 1914:—number of houses inspected, 240; no houses were considered to be in a state so dangerous as to be unfit for human habitation; no representations were made to your Council with a view to making closing orders; no closing orders were made; no dwelling houses had defects made good after closing orders had been made; fifteen dwelling houses had defects remedied without making closing orders; the number of houses in the district within the limit of rent in Section 14 of the Act is 1,361; the number of houses and premises in respect of which notices were served during 1914, statutory notices, six; informal notices, ten. Your Council in no case had to execute any necessary repairs. The number of back-to-back houses in the district is six. There are no cellar dwellings in the district. The houses which were inspected were on the whole clean and commodious, well lighted and surrounded by plenty of air-space.

COMPSTALL URBAN DISTRICT.—“The houses are substantially built and of sufficient accommodation. Back yards are spacious and in most cases kept clean and sanitary. Open spaces are numerous and the blocks of houses are well apart and not congested. Number of houses erected during the year, one. Under Section 17 of Housing (Inspection of District) Regulations, 1909:—number of houses inspected during the year 1914, twelve; number of dwelling-houses found unfit for habitation, none.”

ELLESMERE PORT AND WHITBY URBAN DISTRICT.—“Statistics from the 1911 Census shew that the district is overcrowded. The same conditions as to overcrowding existed up to the middle of August, 1914, but owing to a very large number of local men joining Lord Kitchener's Army and the ironworks being partly stopped in consequence of the war, as previously stated in this report, there has been a fairly substantial migration from the district, with the result that a large number of cottages were unoccupied at the 31st December, 1914.

“A site for working-class dwellings under Part III. of the Housing of the Working Classes Act, 1890, was acquired in July last. The extent of the land purchased was 5 acres 3 roods and 21 poles and the purchase money £1,627. The period sanctioned by the Local Government Board was 80 years and the loan was taken up from the Public Works Loan Commissioners at $3\frac{1}{2}$ per cent. Owing to the war and to the large number of workmen's cottages vacant in the district no further action has been taken by the Council in connection with their proposed housing scheme.

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“One hundred and sixty-two houses have been examined in company with the Inspector; defects were found in 139 of these dwellings, 132 of which were dealt with under the Public Health Acts. Seven notices were served under Section 15 of the Housing and Town Planning Act and most of the work is in progress. No house was found to be in so bad a state as to be unfit for human habitation and there were no closing orders necessary. The following table shews the work done during 1914:—

Number of dwelling-houses inspected under Section 17, Act of 1909	...	...	...	...	162
Number of such houses where defects were found and dealt with ..	...	...	...	...	146
Number of such houses considered unfit for habitation...					0
Number of representations to Local Authority, Section 17					0
Number of houses where defects were remedied without closing orders being made	...	..		...	133
Number of houses for which further proceedings are pending	...	...	...	...	13
Number of houses where defects were remedied after closing orders made	...	...	...	...	0
Estimated or ascertained number of houses within the limit of rent, Section 14, Act of 1909	...			...	471
Number of such houses in respect of which notice was served during 1912	...	...	...	...	0
Number of such houses closed after notice	...			...	0

“The general character of the defects found to exist in these houses may be stated to have been windows not made to open, dampness, dirty papers on the walls, rotten woodwork and floors, general dilapidation, want of light and ventilation and absence of sinks or sink waste pipes.”

HALE URBAN DISTRICT.—“Though the district is still developing as a whole, the main development during the year has taken place in the north and south-east wards, artisans’ dwellings having been built in the Hermitage and Halebarns districts. These readily let, but the internal needs of the district are to my mind amply met. There is no overcrowding in the district and the houses are built with the maximum amount of air-space around that can be enacted. New houses in the course of erection are liberally supervised at each successive stage. The general cleanliness round houses is good. The Housing and Town Planning Act, 1909 (Part I.), has, during the year, been carried out and a report made to you

each month. I append a table giving a summary of the year's working:—

	Houses Inspected	Houses in which Defects were found.	Houses in which Defects were remedied.		
			(a) Informal Notices.	(b) Legal Notices.	
				P. H. A.	H. & T. P. A.
Over £16 ...	35	68	36	31	0
Under £16...	262	70	27	36	4
	597	138	63	67	4

HANDFORTH URBAN DISTRICT.—“No new houses for the working-classes have been erected. The present ones are fairly good—the chief complaint against many of them is dampness. There have been no cases of overcrowding, but any suitable houses are at once snapped up.”

HAZEL GROVE AND BRAMHALL URBAN DISTRICT.—“During the year the following work has been done in accordance with Article V. of Housing (Inspection of Districts) Regulations, 1910, in regard to the inspection of dwelling-houses under Section 17 (1) of the Housing and Town Planning Act, 1909:—

Number of dwelling-houses inspected (under Section 17, 1909)—580.

Number of dwelling-houses considered unfit for habitation—None.

Number of representations made to Local Authority—None.

Number of closing orders made by Local Authority—None.

Number where defects remedied without closing orders being made—65.

Number where defects remedied after closing orders—None.

Estimated number of houses within limits of rent in Section 14, Act, 1909—1,436.

Number of such houses in respect of which notice was served in 1914—53.

Number closed after such notice—None.

Number where Local Authority has executed necessary repairs—None.

Number of back-to-back houses and cellar dwellings—None.

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“Authority has been granted by the Local Government Board to the Council to prepare a scheme and in accordance with this scheme they have scheduled 428 acres in the north ward and 1,300 acres in south and east wards (acreage 1,728). This scheme, No. I., is now being framed.”

HOLLINGWORTH URBAN DISTRICT.—“There are now only 24 back-to-back houses and notices regarding four of these have been issued to the landlords concerned and have been complied with. There were 60 dwelling-houses inspected during 1914, all of which appeared to be satisfactory, except for a few minor defects, which were pointed out and remedied. The following is a tabular statement required by Article 5 of the Housing (Inspection of District) Regulations, 1910, relating to the dwelling-houses inspected under S. 17 of the Act of 1909, during the year 1914 :—

Number of dwelling-houses inspected	...	...	60
Number of dwelling-houses which, on inspection, were considered to be in a state so dangerous or injurious to health as to be unfit for human habitation	...	...	Nil
Number of representations made to the Local Authority with a view to the making of closing orders	...	...	Nil
Number of closing orders made	...	...	Nil
Number of dwelling-houses, the defects in which were remedied without the making of closing orders	...	...	4
Number of dwelling-houses which, after the making of closing orders, were put into a fit state for human habitation	...	...	Nil

General character of the defects found to exist :—

Defective roofs, eaves, gutters, rain pipes and gully traps.
 Back-to-back houses, with want of air space and ventilation.
 Defective floors, staircases, doors and ceilings, windows not made to open, and deficient sanitary convenience.

“Owing to the war, the Council decided that work under the Housing and Town Planning Act should be restricted and only matters of urgency should receive attention.”

HOOLE URBAN DISTRICT.—“The erection of new houses is thoroughly supervised by the Council’s Consulting Surveyor. The question of whether there is adequate house accommodation for the working-classes has received the consideration of the Council and a committee has been formed to deal with the question. At the census there were 1,224 inhabited houses, which, with the population of the Workhouse included, gives an average of 4.8

persons per house, or 4.3 excluding the Workhouse. Six new houses have been completed during the year and two more are in the course of erection, all being carried out in accordance with plans approved by the Council. In connection with the housing inspection, under the Housing and Town Planning Act, 1909, the Sanitary Inspector made inspection of 150 dwelling-houses. In 112 houses everything was found in order and the premises in good condition. Of the remaining 38 houses, informal notices were served for defects."

HOYLAKES AND WEST KIRBY URBAN DISTRICT.—"There does not appear to be any deficiency of cottages for the working classes and the great majority of dwellings are modern and well built, with plenty of cubic space internally and free circulation of air around. The latter requisite for healthy habitations is enforced by a rigid application of the bye-laws for preventing the erection of any structures upon the air space allocated to each dwelling, except such as are legally permissible. Most of the houses are in good repair and apart from minor defects habitable in every respect.

The following table shews the housing inspections made during 1914:—

Number of dwelling-houses inspected under S. 17, Act of 1909	...	...	...	36
Number of such houses considered unfit for habitation...				0
Number of representations made to Local Authority	...			36
Number of closing orders made by Local Authority	...			0
Number of houses where defects remedied without closing orders being made	...	...	...	36
Number of houses where defects remedied after closing order made	...	...	...	0
Estimated or ascertained number of houses within limits of rent in Sec. 14 of Act of 1909	...		...	855
Number of such houses in respect of which notice was served during 1914	...	...	...	36
Number of such houses closed after notice	...	...		0
Number of such houses where Local Authority has executed necessary repairs, &c.	...	...	...	0
Number of back-to-back houses in the district	...			6
Number of cellar-dwellings in the district	...		...	0

"The five cottages referred to in the Annual Report for 1913 and which were considered unfit for human habitation, have been demolished."

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KNUTSFORD URBAN DISTRICT.—“The following table shews the work done during 1914 :—

Number of houses inspected under S. 17 of Act of 1903 ...	23
Number unfit for habitation ...	0
Number of representations ...	0
Number of closing orders ..	0
Number where defects were remedied without closing orders ...	5
Number remedied after closing orders ...	0

“General character of defects: Defective drains and paving, dampness, want of ventilation, insufficient or defective sanitary conveniences.

“There are 730 houses within limits of rent in S. 14 of Act. There are 14 back-to-back houses. Three new houses were built in 1914, none at all having been built during the two years preceding. Of the 23 houses formally inspected, defects were found in five only, and have all been remedied.

Mr. Marshall says:—‘I regret that so little work has been done in this direction, but owing to the great amount on hand in other ways (viz., street improvements and making new streets under a loan from the Local Government Board), I have found it impossible to give the proper time and attention to general sanitary work and inspections so long as I am carrying out the special work above-named.’

“From a personal knowledge I entirely endorse this statement.

“The scheme for the ‘Princess Street area’ has dragged through yet another year. An application was heard by Mr. Justice Eve on July 8th and 9th, which settled the principal outstanding dispute and I have hopes that the work will really commence in 1915. The position as regards the erection of workmen’s dwellings is worse than it was a year ago. As has been stated before, the available building land is in one or other of four large estates and in spite of the Council’s willingness to proceed, it has hitherto been found impossible to arrange terms for purchase, owing to the vendors insisting upon conditions being embodied in the contract for sale which the Council considers unreasonable and inequitable. The Council is reluctant to exercise its powers for acquiring land compulsorily, but its patience is becoming exhausted.”

LYMM URBAN DISTRICT.—“In 1914 eight new houses were built. The average number of persons per house is 4.2 (census

year 1911). I will again repeat my remarks of last year, that adequate domestic bath accommodation should be provided for every householder and his family. How can the family of a working man, consisting of members of both sexes and beyond the age of childhood, conveniently and decently get a bath with a tub and the kitchen—the common living room—as the only means and place for so doing? Every new cottage also should have at least three bedrooms; in all cases it would be a convenience, in a large number it is an urgent necessity for sanitary and social reasons.”

MIDDLEWICH URBAN DISTRICT.—“The house accommodation is good and sufficient. The houses of the working classes are good structurally and sanitary. Inspections 34.”

MOTTRAM URBAN DISTRICT.—“Sixteen houses were inspected. These inspections were made during the first six months of the year. The war broke out—the cotton trade became very bad, so your Council did not think themselves justified in compelling extensive improvements to property, because in some cases the landlords were receiving practically no rents. No representations were made to the Local Authority, nor were any closing orders made by the Local Authority. Four houses were closed voluntarily, two being pulled down. Defects are being attended to in the 16 houses inspected. In no case had the Local Authority to execute any necessary repairs. The chief defects found were, deficient spouting, slopstone pipes too short, uneven flagging in the yards, windows unable to be opened top and bottom. The number of back-to-back houses in the district is six and five cellar dwellings. The number of houses in the district within the limits of rent in Section 14 of the Act of 1909 is about 730. Nine new houses have been built.”

NANTWICH URBAN DISTRICT.—The Inspector remarks:—

“During the years 1911 and 1912 a complete house-to-house inspection was made of the whole district and the inspections journalised. As the result of the inspection the closing of nine houses was made under the Housing and Towns Planning Act and 1,764 nuisances were abated. During the year under review systematic inspections have been made and nuisances found are recorded under different headings. No representations have been made to the Local Authority with a view to the making of closing orders. No new houses have been erected during the year 1914. There is a sufficiency of housing accommodation available for housing of the working classes, as is evidenced by the number of void houses in the district. Cases of overcrowding are few in number and they are promptly dealt with.”

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NESTON AND PARKGATE URBAN DISTRICT.—“Overcrowding exists in the working-class dwellings and its radical treatment cannot be enforced until new cottages are available at low rentals. The three houses for which demolition orders were obtained are now being pulled down. The Neston Cottage Company, Ltd., have erected nine cottages, all of which are occupied. In all 17 new houses have been erected during the past year, 11 of which are artisan dwellings.

“Housing inspection under the Housing and Town Planning Act has had the careful consideration of the Local Authority during the year, but has been somewhat interfered with owing to additional work thrown upon your Medical Officer of Health in the early part of the year, by the preparation of evidence and attendance at the inquiry held by the Local Government Board in connection with the proposed extension scheme of the boundaries of the County Borough of Birkenhead and later by the arrangements and supervision of matters arising from the billeting of soldiers in the various parts of the area.

Tabular statement of housing inspections in 1914 :—

Number of dwelling-houses inspected under S. 17 Act of 1909	...	...	...	...	24
Number of such houses considered unfit for habitation	...				0
Number of representations made to Local Authority	...				24
Number of closing orders made by Local Authority	...				0
Number of houses where defects remedied without closing orders being made	...	...	...		9
Number of houses where defects remedied after closing orders made	...	...	...	...	0
Estimated or ascertained number of houses within the limits of rent in S. 14 Act of 1909	...				674
Number of such houses in respect of which notice was served during 1914	...	...	...	...	24
Number of such houses closed after notice	...			...	0

“The general character of the defects found to exist in these houses may be stated to have been windows not made to open, dampness of walls, numerous filthy papers covering walls, rotten woodwork and floors, general dilapidation, conveniences insanitary and deficient in number, want of light and thorough ventilation, absence of sinks and water not laid on. In many instances the tenants’ own conduct was responsible for the dirty and neglected condition of the dwelling.”

NORTHWICH URBAN DISTRICT.—“During the year the number of new houses built was 29 and the number inspected

under the 1909 Act was 96. As a result there were 10 found unfit for habitation and of these three were repaired and seven demolished after representation to the Local Authority, closing orders were not required or made. The other defects consisted of dilapidated and inefficient sanitary causes, roofs and floors unsound, also doors and windows the details of which are set out in the report of the Inspector. There are 3,560 houses in the district within limits of part of Sec. 14 of Act 1909. There are no cellar dwellings and approximately some 130 back-to-back houses in the district. The sanction of the Local Government Board has been given to the scheme of the Authority (after amendment) for the erection of workmen's dwellings. The Local Government Board have made the excellent provision that only 36 cottages instead of 48 as intended by the Council shall be put on the land; this is as it should be and also the requirement has been stipulated that instead of all the houses having only two bedrooms that half of the number shall be provided with three bedrooms. On these lines the scheme is going forward, and it is to be hoped that the houses will be built soon, although considerable numbers of houses have been built in the adjoining areas which relieves this Urban District of its congestion. The desideratum is a roomy and healthy cottage at a cheap rent for the use of men making from 20/- to 22/- per week and if I may be forgiven for repeating what I have urged before, it will be a cheaper and infinitely better use of money to subsidise houses for the 'working' man than it is for the provision of 'wash houses,' asylums, sanatoria, &c., &c., for the sick and invalid.

The Inspector remarks:—"Ninety-six houses have been inspected during the year and 25 were found to be in good sanitary condition. The drains of 17 were found to be defective, nine had defective pails, seven dilapidated cesspools, 33 ashbins were out of repair and 11 ashpits had to be repaired. Three more ashpits have been removed and ashbins substituted, 10 had defective roofs and the bedroom floors of five had to be renewed, as they had become unsafe through old age and subsidence. In 37 cases, doors, windows and fireplaces were found to be out of repair, the work being carried out under my supervision. Ten houses were found to be unfit for habitation and two are now under repair, the others are under notice to be demolished, all repairs are being carried out as quickly as possible. The Council have received sanction to erect 36 houses and a tender has been accepted for the work."

RUNCORN URBAN DISTRICT. — "The local requirements of works in and outside the district for workmen have gradually increased in recent years and although some of the owners have

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facilitated as far as possible the provision of dwelling-houses for their workmen, private enterprise does not appear to have been aroused to meet the demand. In addition a number of houses have been condemned and demolished on account of their insanitary or dangerous structural condition. The matter has been brought to the notice of the Urban Council from time to time; but Local Authorities are not intended to compete with private enterprise in the provision of cheap dwelling-houses; a scheme for housing may become essential upon the demolition of insanitary areas of comparatively considerable size and it is very doubtful whether the demolitions which have been carried out warrant such a scheme in a small town like Runcorn. It is generally acknowledged that the workman who is earning a weekly wage of 25/- or more at employment which is likely to be permanent, will find private enterprise ready to meet his requirements for a suitable house. Workmen are mostly employed at works at or just beyond the town's boundaries, towards Halton and Weston and Weston Point. In the former district, housing accommodation is still insufficient in spite of the building of recent years; in the latter district the tendency is arising to build workmen's houses in or near the residential area of Higher Runcorn; this will tend to depreciate the value of the residences there and also to detract from the usefulness of Higher Runcorn as a large healthy 'open' area.

“The dearth of good workmen's houses makes it difficult to meet the requirements of the Housing and Town Planning Act completely. There is a tendency amongst landlords to raise the rents of these houses where repairs have to be done under the provisions of the Act in order to recoup themselves for the outlay. The internal defects most commonly met with comprise damp walls (often through lack of damp course), dirty wall papers, dirty houses, faulty ventilation, defective windows, broken plaster and so on; while the pointing of external walls, reslating and repairs to gutters and down spouts are generally neglected until enforced.

“The inspection of houses in order to remedy such structural defects, to secure cleanliness and internal repairs and to prevent over-crowding is one of the most important duties of the Sanitary Authority and the efficiency with which they are carried out will play an important part in reducing the incidence of phthisis in particular (which is frequent in the town) and in improving the health of the inhabitants in general. The following statement shows the work done under the Housing and Town Planning Act, 1909, during 1914 :—

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No. of new houses built during 1914	16
No. of dwelling-houses inspected under Sec. 17	543
No. of closing orders made by Local Authority	...	...	3
No. of houses where defects were remedied without closing orders being made...	...	...	6
No. of houses where defects were remedied after closing order made	...	...	0
No. of houses with work in progress	...	...	5
No. of houses where Local Authority executed the necessary repairs	...	...	0
No. of houses demolished	...	...	3
Leaving to be dealt with	...	...	14
No. of back-to-back houses	...	about	100
No. of cellar dwellings	...	...	0

SALE URBAN DISTRICT.—“Under the Housing and Town Planning Act, some 2,020 houses are affected and 750 of these dwelling-houses have been inspected during the past year. No houses have been absolutely condemned. The defects found requiring attention were—insanitary backyards, insanitary closet accommodation, defective drainage and cases of overcrowding.”

SANDBACH URBAN DISTRICT.—“The existing houses are in a good state of repair, with plenty of air, space and light and very few are not connected to the water supply and sewerage scheme. The trade in the town being in a very flourishing condition makes a demand for houses in excess of the existing supply. During the year 12 new houses have been erected and plans for 12 more houses have been passed by the Council. One old house has been demolished and another converted into an office and warehouse, whilst one disused old cottage has been practically rebuilt and is not included in the 12 new houses mentioned above. The house-to-house inspection under the Housing (Inspection of District) Regulations, 1910, which was commenced in 1911, has been continued throughout the year by the Inspector of Nuisances and is described in the paragraph relating to the Housing, Town Planning, &c., Act. 443 visits to houses have been made by the Inspector (in addition to those under the 1910 Regulations) in connection with nuisances, complaints, infectious diseases, house drainage, closet and ashpit accommodation, vans, offensive accumulations, piggeries, &c. The policy of interviewing owners and persuading them to carry out improvements has been followed in preference to the serving of notices and has almost in all cases met with success. It has, however, been necessary to serve four statutory notices. The drainage in connection with old houses has

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in many cases been improved and numerous up-to-date yard gulleys have been provided and new drains laid at several houses. The conversions, &c., in regard to closet and ashpit arrangements are given in a later separate paragraph."

WILMSLOW URBAN DISTRICT.—"Ten new houses were built in 1914, but none of these are rented at less than £16 per annum. There is a shortage of cottages in the district. The character of houses for the working classes on the whole is satisfactory. Some of the older cottages are defective. Inspections of these are being carried out. No cases of overcrowding have come under notice. Bye-laws are in force relating to the construction of new houses. There are no back-to-back houses and no cellar-dwellings. 172 dwelling-houses were inspected under Section 17, Act of 1909. Ten were considered to be unfit for habitation. Ten representations were made to the Council. Four closing orders were made. Six are under consideration. In no case were defects remedied without the making of closing orders. No dwelling-houses were put into a fit state for human habitation after the making of closing orders. General character of defects found to exist:—1.—Defective paving; 2.—Insufficient ventilation."

WINSFORD URBAN DISTRICT.—Mr. Hickson's report is as follows:—

"Housing Inspections.—Two hundred and six houses have been inspected by myself in detail and visited by Dr. Garstang, being afterwards made the subject of conjoint reports from time to time to the Health Committee and the Council. They are divided as follows:—Ninety in Station Road, 10 in Dierden Street, 12 in Ledward Street, 11 in Princess Street, 23 in Wharton Road and eight in Crook Lane; a total of 152 in Wharton. Also six in Swanlow Lane, two in Delamere Street, two in Geneva Road, two in Siddorn Street, six in Royle Street, six in Weaver Street, six in Ways Green, 16 in Gladstone Street and six in High Street; a total of 52 in Over. The defects discovered at these inspections include, among other matters, insanitary privies and ashpits, defective drains, gullies and yard-paving, want of or defective slopstones and fittings, defective floors, rainspouts connected with drains and in a few houses overcrowding and uncleanly conditions. At 182 houses the improvements required and suggested have been carried out, including 182 privy-cesspools converted to water-closets, 136 new house drains, with gullies and all other requisites connected and proper gradients to sewers; 152 rear yards newly paved, making impervious surfaces and proper gradients to sewers; 120 covered galvanized ashbins provided where proper arrangements did not exist, 110

new slopstones, with lead piping and other requisites attached and new damp-proof courses in connection with five houses. Written notices were served with respect to 18 houses, the improvement at the remaining houses being secured by personal negotiation with the owners or agents on the site.

“The War has materially retarded the arrangements and progress of improvements at house property during the latter part of the year and on this account the results achieved are not quite so good as was expected.”

The Medical Officer of Health adds: “In connection with this subject I wish to point out that every house registered as ‘inspected’ is also thoroughly dealt with and put generally into a satisfactory state of repair. It is not merely entered in the register and nothing more done. If due weight were given to this certificate of efficiency of ‘inspection,’ I cannot think that the Winsford Urban District would appear in the list of districts whose work is characterised as ‘inadequate’ by the County Medical Officer of Health in his Annual Report, 1913, p. 312.

“The number of house inspections in Table XXV. is 337. This includes the above 226 houses (each of which was visited many times and so the number of visits of inspection was many times greater than stated) and 131 houses inspected in connection with cases of infectious disease (to which the same remarks apply).

Number of houses inspected under Sec. 17	...	...	206
„ found unfit for habitation	...	...	0
„ of representations (for closing orders)	...	...	0
„ of closing orders	...	...	0
„ of houses remedied without closing orders	...	...	182
„ „ „ after closing order	...	...	0

“General character of defects found: Defective paving and drainage, unauthorised obstructive out-buildings, defective floors, damp walls, want of slopstones, defective and insanitary privies and ashpits.

“Eight cases of overcrowding have been dealt with and in each instance the nuisance has been abated.

“The character of the houses for the working classes is in most cases quite satisfactory and is improving each year as the worst cases are dealt with (as above). The sufficiency will of course be measured by the number of empties; this number fluctuates according to the state of trade. The population is not

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perceptibly growing and absentees in connection with the War will cause the estimate for 1915 to be diminished by 700, or 6.4 per cent. Supervision over the construction of new houses is in the Surveyor's hands and as he is independent of the Health Department he does not report to me and I have no information to give. On all other points reference may be made to previous reports."

YEARDSLEY-CUM-WHALEY URBAN DISTRICT.—"The chief occupations of the district are calico printing, cotton weaving and colliery work. The district is amply supplied with houses for the working classes and taking the district generally, the houses are in every way satisfactory, consequently there is no call to put any of the various Acts or powers for the housing of the working classes into operation in your district. Eight new houses have been built during the year."

BUCKLOW RURAL DISTRICT.—Mr. Metcalfe reports as follows:—

"HOUSING AND TOWN PLANNING ACT, 1909.

Number of Houses inspected under Section 17, Act of 1909	247
" " found unfit	2
" representations to Local Authority ...	2
" closing orders made	2
Number of houses where defects remedied without closing order	146
" within limits of rent of Section 14 ...	3,120
" notices served on such houses	170
" closed	3
" back-to-back houses	nil
" cellar dwellings	nil

"The work under this Act was proceeded with and 247 houses inspected. Two representations were made to the Council in respect of two houses unfit for human habitation and closing orders issued. Defects were remedied without closing orders at 146 houses.

"Two cases of overcrowding were discovered towards the end of the year and notices served. These are the only cases of overcrowding found to exist since inspections were commenced under this Act. The usual defects were bad floors and staircases, dampness, defective ceilings and plastering, dilapidated fireplaces, bad paving in yards and wash-houses, old foul sinks, light and ventilation defective, windows too

small and could not be opened, leaking untrapped and un-ventilated drains and insanitary privies. Very few (if any) houses were found where all these defects existed and they varied considerably in degree where found from 'slight' to 'serious.'

"The question of housing accommodation was before the Health Committee on several occasions and the more information there is obtained about this question the less need there appears to be for the Council to erect cottages in this district. There is no doubt that private enterprise is still capable of supplying an adequate number of houses where there is a real demand.

"If the building of houses in future years proceeds in anything like the same ratio as in 1914 it will be many years before the Council need take any action under Part III. of the Housing of the Working Classes Act, 1890.

"This work like others coming under this department has been retarded owing to the war and the example of some of the adjoining authorities. There are many notices not complied with, especially in the township of Northenden. I hope to get the work commenced early in 1915, failing which I shall be obliged to ask the Council to take legal action against the defaulters."

The Medical Officer of Health adds:—"On this matter I promised to publish certain figures which would result from a formal enquiry which was carried out by the Health Committee. Unfortunately it was found impossible to present these figures in a tabular form, as no common standard of value could be laid down. Very roughly, what happened was this. The first returns showed a shortage of several hundred cottages, but on examination they were found mainly in three groups.

(1.) *Partington*.—New Steel Works. This is complicated by a question of readjusting the County boundary. In any case the works are on the north side of the Ship Canal and cottages would not be convenient if built on the south side. As the site of the works will be (probably) transferred to Lancashire, this claim for cottages in Partington was disallowed.

(2.) *Broadheath*.—This is the northern suburb of Altrincham in which is developing an engineering industry. It lies

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partly in the Altrincham Urban District and partly in Dunham Massey Rural District and until the position is made much more clear than it is at present the Rural District definitely refuses to build cottages for workers in the Urban District.

(3.) *Northenden*.—Adjoins the City of Manchester. Would be a popular residential suburb for the higher-grade working-classes if developed. The Rural District Council definitely refuses to build for this purpose.

“Eliminating these demands, a second enquiry appeared to establish the fact that about 75 cottages were really needed. That is an average of $2\frac{3}{4}$ in each township, mainly for agricultural labourers and the Committee hoped to get these built by the estate-owners. At the moment, however, on account of the drain caused by the war, there is probably no actual shortage. The statistical and other information required by Article V. of the Housing Regulations, 1910, will be found in the immediately preceding pages. This is a district, as often stated before, where building Bye-laws have always been enforced and where supervision over construction has been close and continuous, especially in the matters of water-testing drains and so on.”

CONGLETON RURAL DISTRICT.—“Only 13 new houses have been built this year against 38 last year. Three hundred and thirteen houses have been inspected under this Act, still leaving a large number to be visited. Holmes Chapel, Elworth and Astbury are short of workmen’s cottages.”

DISLEY RURAL DISTRICT.—“There are 830 houses in the district. Number of dwelling-houses inspected under Section 17 of the Act of 1909, 45. The chief defects found were want of through ventilation and disrepair. In 50 houses defects were remedied without the making of closing orders.

“In conjunction with the County Medical Officer of Health I inspected a block of property at Gee Brow, Disley. Closure of two houses was recommended and various alterations in the others suggested. I understand the matter is under the consideration of the Council. The following tabular statement shews the work done during 1914:—

Estimated or ascertained number of houses within limits of rent in Section 14 of Act of 1909—605.

Number of such houses in respect of which notice was served during 1914—36.

Number of such houses closed after notice—None.
 Number of such houses where Local Authority has executed necessary repairs, &c.—None.
 Approximate number of back-to-back houses in district—9.
 Approximate number of cellar dwellings in district—None.
 Number of new houses built during 1914—13.
 Number of dwelling-houses inspected under Section 17, Act of 1909—61.
 Number of such houses considered unfit for habitation—2.
 Number of representations made to Local Authority—2.
 Number of closing orders made by Local Authority—None.
 Number of houses where defects remedied without closing orders being made—50.
 Number of houses where defects remedied after closing orders made—None.”

MACCLESFIELD RURAL DISTRICT.—“The work of inspecting the houses of the district for the purposes of Section 17 of the Housing and Town Planning Act, 1909, has been steadily carried on throughout the year, 661 such inspections having been made. No houses were considered unfit for human habitation and no closing orders were necessary. One case of overcrowding which was being dealt with in 1913 was abated. The following table shews the work done during 1914:—

The number of dwelling-houses inspected under and for the purposes of Section 17 of the Act of 1909...	661
The number of dwelling-houses which on inspection were considered to be in a state so dangerous or injurious to health as to be unfit for human habitation ...	0
The number of representations made to the Local Authority with a view to the making of closing orders ...	0
The number of closing orders made ...	0
The number of dwelling houses the defects in which were remedied without the making of closing orders ...	92
The number of dwelling houses which after the making of closing orders were put into a fit state for human habitation ...	0

“The general character of the defects were:—Inefficient drains, improper methods of conservancy, inadequate means of ventilation of sleeping rooms, roofs not weather-proof, damp walls and floors, decayed eaves gutters and downspouts and other minor matters. During the year the plans for 21 new working-class dwellings were submitted and approved and the

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work is now proceeding. In all such cases due supervision of the work of construction is maintained by the Surveyor."

The Surveyor remarks:—"The tabular statement (see above) for the County Council summarises the work under this heading. The 1,055 general inspections of dwelling-houses included 661 which were for the purposes of the records required by Article III. of the Housing (Inspection of District) Regulations, 1910. This new series of records now includes 3,186 houses. From the table it will be seen that structural conditions, apart from drainage and conservancy methods, have occupied a good deal of attention. Extensive repairs and improvements have been effected without legal proceedings, without a closing order and with but few statutory notices, the greater portion of which referred to one group of twenty houses, the sleeping rooms of which were without adequate means of ventilation. Forty-nine sets of plans of proposed new buildings were deposited and approved. These provided for—*inter alia*—36 dwelling-houses, including 21 working-class houses."

NANTWICH RURAL DISTRICT.—The Inspector remarks:—"In his last annual report Dr. Turner gave a list of the townships where in his opinion cottages are urgently needed for the decent housing of labourers employed on farms and doing other work essential to the development of agricultural industry. A special Committee appointed by the Council has been dealing with the question of building suitable cottages. Plans have been approved by the Committee. As the need for cottages in parts of your district is urgent it is hoped that the Council will approve of the Committee's recommendations and begin the work of cottage building as soon as possible. Material sanitary improvements have been and continue to be made in existing cottages. In many of the cottages built before building Bye-laws were adopted by your Council no damp-proof course has been inserted. As a result, on inspection, one frequently finds the walls of cottages to be damp, rendering them dangerous to health. Dampness of houses and of soil has been shown to act as a favouring agent to tubercle, mainly by lowering the resistance of the body. A better environment must necessarily in the long run exert a physiological and educational as well as a physical influence. On this fact is based principally our hope and definite expectation of the moral and physical improvement of the working-classes as a result of our efforts to amend their surroundings. A special report was submitted to the Sanitary Committee on re-inspections made in several townships in your district.

“Bedrooms built over sculleries, etc., number five. In many instances it is possible to build an additional bedroom over the scullery belonging to two bedroom cottages at a small cost. If owners could be induced to do so the dangers to health arising from overcrowding would be greatly minimised and provision made for the separate sleeping accommodation for children of opposite sexes. Structural improvements at 34 dwelling-houses were carried out by the owners voluntarily. In several instances damp-proof courses have been inserted to prevent dampness arising by capillary attraction.

NORTHWICH RURAL DISTRICT.—“The question of town planning is in abeyance, but a great stride in housing has been accomplished by the setting of contracts for six houses at Delamere for the Rural District Council. The particulars were reported last year and the sanction of the Local Government Board, after enquiry, was obtained for the loan.

“Although 77 new houses have been built during the year, there still remains the great need of a ‘cheap’ cottage, as most of the new ones are of rentals over 5/- per week—too much for the labourer whose income is 20/- to 22/- a week and that often intermittent. However we have now got the contracts set for six cottages, two with two bedrooms each and four with three bedrooms each. I should have been satisfied if all of them had been two bedroomed houses provided that they were cheap in rental, for it is usual in the rural districts for the children at 14 to go out to service, many families never have need of three bedrooms; newly-married couples of the most prolific type can be accommodated in two bedrooms for several years and overcrowding may be and often is as great in a three as a two bedroomed house. In any case it is essential that there should be plenty of houses before overcrowding can be dealt with. Of course a house with three bedrooms—if they are bedrooms and not cupboards, is better than one with only two and we should all like every house to have bathrooms, butler’s pantries and wine-cellars, but—to contract the yard space, sanitary accommodation and other conveniences to obtain these is false economy, as it also is to sacrifice them to the fetish of three small bedrooms; ‘roominess is a *sine qua non* of that property which is allied to Godliness.’

“The new Bye-laws which have been drafted and await the sanction of the Local Government Board will greatly help the provision of cheap cottages and if water supply is available there will then be no hindrance to the erection of cottages within the limit of rental of the labourer, over the whole of

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these sparsely populated rural districts where there are at present less than two persons per acre and that is where we want them and where the labouring man can rear a family of robust physique.

“Inspection of houses has been done during the year under Section 17 of 1909 Act and some 329 visits made. One house was found unfit for habitation and condemned by the Medical Officer of Health. It has been remodelled and made habitable. This was the only closing order made and no other representations were made to the Local Authority. In 47 houses defects were remedied without closing orders being made and the one already mentioned after an order was made. During the year 143 notices were served in relation to houses within the limit of rental in Section 14 of Act of 1909, the full number of such houses being 4,382. One house was closed after such notice which is now rescinded. No repairs have been carried out by the Local Authority. The number of back-to-back houses in the district is not known but is not great. There are no cellar dwellings.

“Altogether the record of work and results obtained have been good and showed marked progress. The work and particularly the records of it have suffered from the absence of the Inspector, who being a Sergeant of Yeomanry, was called up on the outbreak of war. The Surveyor stepped into the breach and an assistant was appointed to help him with the Inspector’s work, after a short time he too—being a reservist and pressed by the military authority—also went to the ‘colours’ and another assistant was eventually secured in his place. This has naturally caused some omissions in the record of work done.”

The Surveyor remarks:—“Plans for the erection of 106 new dwelling-houses have been submitted for the Council’s approval during the year, 94 of which were passed (as compared with 75 last year) and two rejected. Also, plans for additions to nine dwelling-houses and for six other erections, including one chapel and two institutes, have been approved. Included in the above are the plans of six workmen’s dwellings which the Council have approved and the contract for the erection of which is set, to be erected in the township of Eddisbury. The work of construction of access roadway, sewers and water main for same is being carried out under separate contract in my department, an Architect having been called in to carry out the work of erection of the houses. Two of the proposed cottages have two bedrooms and four

have three bedrooms and each house is fitted with a bath in the scullery. The living rooms to each house consist of large kitchen and scullery. The water supply is the Council's obtained from the Liverpool Corporation's supply and the sewage is to be dealt with by means of septic tank and irrigation. The ground allotted to each house is about one-fourth of an acre. The Council have approved for habitation during the year 77 new dwelling-houses as compared with 35 last year and about 230 inspections during erection and completion have been made. One labourer's cottage has been lost at Weaverham (Sandiway) by reason of two cottages being converted to one dwelling-house.

"New Bye-laws relating to new buildings and streets have been prepared and the printer's proof copies are now in the Council's hands. These will of course need the final approval of the Local Government Board before further steps can be taken. The provisions of these new Bye-laws make it possible for wood dwelling-houses to be erected provided that the foundations and sanitary arrangements are satisfactory and the space about such buildings complies with requirements laid down therein."

The Inspector remarks:—"The estimated number of dwelling-houses within the limits of rent in Section 14 of the Act of 1909 is 4,382. Three hundred and twenty-nine inspections have been made with the result that notices have been served during the year in connection with 143 of such houses, 129 of which have been complied with and the remainder being in hand. One statutory notice only was served in connection with one house at Barnton and this has now been rescinded, the house having been overhauled and repaired."

RUNCORN RURAL DISTRICT.—"The action undertaken by your Council, acting on the various recommendations of the strong Housing and Town Planning Committee which you appointed to receive the reports of your Medical Officer and Inspector and Surveyors has been already alluded to and the figures relating to these are embraced in the tabular statements appearing in this and previous reports. 1,380 houses have been inspected during 1914 and extensive alterations and improvements have been carried out in all the townships which we have, up to the present, been able to visit and inspect. We are dealing with the various properties more or less in order of their importance or their necessities, the denser populations coming first under consideration; later on the

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rural portions will receive attention. For the purposes of this Act you have appointed an Assistant Inspector in order to cope with the requirements of the Housing, Town Planning, &c., Act, 1909."

TARVIN RURAL DISTRICT.—"With regard to the deficiency of accommodation of the housing of the working-classes it is difficult to say to what extent this exists. I should say the parishes of Caldecott, Coddington, Golborn David, Hockenhull, Huntington, Newton and Tattenhall are all in want of further cottage accommodation. Two new houses have been built in Tattenhall, six in Kelsall and one in Cotton during 1914 and you have had before you and decided to build cottages in Newton and Tattenhall. No scheme of Town Planning has been put forward for your district nor any part thereof."

TINTWISTLE RURAL DISTRICT.—"The number of houses inspected under and for the purpose of Section 17 of the above Act was 21. No houses were considered unfit for habitation. No representations were made to the Local Authority, nor were any closing orders made by the Local Authority. In the case of 13 houses defects were found and notices for remedying the same were served on the owners. The defects were remedied in four houses and in the other three are being attended to. Owing to the depressed state of the cotton trade in the district work in connection with the above Act has been suspended, as in many cases the owners have been unable to collect the rents. When the cotton trade improves the work will be continued. The Local Authority has not found it necessary to execute any repairs. There are two back-to-back houses in the district but no cellar dwellings.

"The chief defects found were:—Defective roof, spouting, no trap to slopstone pipes, windows not made to open. The number of houses in the district within limits of rent in Section 14 of the Act of 1909 is 442. Two new houses have been erected during the year."

The Inspector remarks:—"The number of dwelling-houses inspected under and for the purpose of Section 17 of the Act of 1909 is 21. None of the houses were considered unfit for human habitation. Defects were found in connection with 13 of the houses and notices have been served to remedy seven of them. The notices have been complied with in respect to four of the houses; the defects have been partly remedied and the remainder are now being carried out in connection with three houses. The notices for the remaining six houses have been

temporarily held over on account of the bad state of the cotton trade, in which the majority of the tenants are employed and which in some cases has affected the paying of the rents. When the cotton trade (which is the staple industry of the district) improves these notices will be served."

WIRRAL RURAL DISTRICT.—"The change which is taking place all over Wirral may be summed up in the one word urbanisation. The whole area is in a state of transition and should the plans for more direct communication with the Lancashire side of the Mersey mature the rural character of Wirral will rapidly become a matter of past history. New, wide, modern roads are being laid out in various parts of the peninsula, the ultimate effect of which will be the conversion of what is now agricultural land into residential sites for the dwellings of town workers. Here and there old thatched cottages are still to be found, but modern habitations are largely in the majority in every township."

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Table showing approximate number of back-to-back houses and cellar dwellings in the several districts in the County in the year 1914.

	Back-to-back Houses.	Cellar Dwellings.
MUNICIPAL BOROUGHs—		
Congleton	2	0
Crewe	59	0
Dukinfield	108	0
Hyde	17	—
Macclesfield	150	0
Stalybridge	410	0
OTHER URBAN DISTRICTS—		
Alderley Edge	1	0
Alsager	0	0
Altrincham	—	9
Ashton-upon-Mersey	0	0
Higher Bebington	0	0
Lower Bebington	2	0
Bollington	6	0
Bowdon	0	0
Bredbury & Romiley	8	0
Bromborough	0	0
Buglawton	2	0
Cheadle & Gatley	6	0
Compstall	15	1
Ellesmere Port & Whitby	0	0
Hale	0	0
Handforth	0	0
Hazel Grove & Bramhall	0	0
Hollingworth	24	0
Hoole	0	0
Hoylelake & West Kirby	6	0
Knutsford	14	0
Lymm	4	—
Marple	46	0
Middlewich	0	0
Mottram	6	5
Nantwich	12	0
Neston & Parkgate	0	0
Northwich	130	0
Runcorn	100	0
Sale	4	0
Sandbach	4	0
Tarporley	0	0
Wilmslow	0	0
Winsford	12	0
Yeardsley-cum-Whaley	0	1
RURAL DISTRICTS—		
Bucklow	0	0
Chester	0	0
Congleton	0	0
Disley	9	0
Macclesfield	0	0
Malpas	0	0
Nantwich	12	0
Northwich	not known	0
Runcorn	24	4*
Tarvin	0	0
Tintwistle	2	0
Wirral	—	0

* None occupied.

Town Planning.

The following remarks of the District Medical Officers of Health are of interest:—

CHEADLE AND GATLEY URBAN DISTRICT.—“During 1912 your Council had conferences with several of the neighbouring authorities and a portion of the north-eastern boundary (Adswold District) was taken first, consisting of an area of 471 acres and a population of 54. In 1913 application was made and sanction given by the Local Government Board to prepare a scheme for this area. In 1913 an owners' meeting was held in respect to area No. 2 (4,231 acres), which practically includes the remaining portions of the district with the exception of the excluded areas. Application for sanction to prepare a scheme for this area is about to be made.”

HALE URBAN DISTRICT.—“During the year much progress has been made with the preparatory work for the Town Planning Scheme. The reference book has been completed and the first notices have been served. Maps Nos. 1 and 2 have been prepared and formal application has been made to the Local Government Board for permission to prepare a scheme.”

NESTON AND PARKGATE URBAN DISTRICT.—“Permission has been obtained from the Local Government Board to prepare a Town Planning Scheme for Neston. Several small portions of the suggested area have been excluded by the Local Government Board, amounting to a total of nine acres. The Council included 254 acres on the foreshore, all of which have been excluded.”

MACCLESFIELD RURAL DISTRICT.—“A scheme of Town Planning has been put forward for parts of the Townships of Poynton and Woodford, which adjoin the Hazel Grove and Bramhall Urban District. The area to be included has not yet been determined.”

WIRRAL RURAL DISTRICT.—“The draft for No. 1 Town Planning Scheme, which includes the parishes of Childer Thornton, Eastham, Hooton, Little and Great Sutton, is now before the Local Government Board. Schemes Nos. 2, 3, 4 and 5 are being prepared and notices have been served upon owners and other persons interested.”

CO-OPERATION WITH MILITARY AUTHORITIES.

Section XIII.—Miscellaneous.**Co-operation with Military Authorities.**

Several circulars and memoranda on this important matter have come to hand during the year. These have contained many valuable suggestions for the protection of the health of troops stationed in camps and billeting areas and for the protection of the health of the civil population in such areas. I have freely offered my own services and in a very few instances this offer has been utilised. But assistance has only rarely been sought from my department and I gather from several District Medical Officers of Health that their situation in this matter is the same as my own. The Military Authorities, no doubt, know their own business best, but they appear to lose sight of two facts: (1) That the Medical Officers who have acted as public health advisers in districts for many years know more about their districts than a Sanitary Officer specially detailed for inspection can hope to find out in a few hours or a few days: (2) That troops collected from various localities and aggregated together in camps or billets may be a source of danger to the civil population.

I am still only too willing to assist or co-operate wherever and whenever my help is desired and I shall not hesitate to interfere when I have reason to suspect that there is any danger to the health of the civil population or of the troops. But one does not receive the encouragement or assistance from the Military Authorities that one was led to expect.

The remarks of some of the District Medical Officers of Health on this question are appended.

DISTRICT A.—“The War Office took over the Wirral Show Grounds on the mobilisation of troops, and in August about 200 Denbighshire Hussars were quartered here for a month, having been sent for isolation purposes owing to an outbreak of ringworm among the horses. In October 60 men with 92 horses of the Garrison Artillery were stationed here, together with 20 men and 24 horses belonging to the Field Artillery. These were also isolated for ringworm among the horses and left in December. Steam disinfection of horse cloths, men's blankets and bedding was carried out by the Local Authority as required. After thorough disinfection of the whole of the buildings occupied by both horses and men, they were again utilised for the local ‘Bantam’ Battalion,

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who are in occupation. A great deal of work was involved in the fitting up of sanitary arrangements, etc., before the place could be occupied by so many men.

“A party of Belgians, numbering 110, were established for one month in Hulme Hall by the generosity of Sir William Lever, Bart. Systematic inspections with regard to sanitation have been made and every assistance afforded from this department.”

DISTRICT B.—“A special inspection was made by the M.O.H. and S. I. of that portion of the Concentration Camp which lies in this district. None of the German prisoners are lodged here, but only their guard. The arrangements for them consist of pails and troughs in a specially-built and roofed out-house. The pails, &c., are frequently emptied by a contractor, and the contents are disposed of outside the district. So far nothing has arisen to interfere with the general health of the community through the formation of this camp.”

DISTRICT C.—“Every effort has been made to keep the district up to its usual standard of health and sanitation by undertaking the necessary sanitary arrangements previous to the arrival of the troops and, later, by maintaining a strict supervision over all matters which might affect the health of the community adversely. The services of this department have at all times been placed at the disposal of the Military Authorities.

“The Public Hall was taken over by the War Office and at the middle of August about 300 men were stationed there. This number practically remained the same until the end of November, by fresh men filling the places of those drafted elsewhere. Amongst these there occurred one case of scarlet fever and one bad case of mumps. Both were treated in the Isolation Hospital, where they made a good recovery and it is satisfactory to report that no further spread of either disease occurred. Rigid disinfection was carried out in connection with beds, clothing and rooms and it was considered advisable owing to contacts to disinfect the bedding from three other military depôts in the immediate neighbourhood, which involved the removal and disinfection of 600 blankets.

“On the 22nd December about 600 men were sent into the district and were divided between the Public Hall, Christian Institute, a garage, the Central Hall, Town Hall and Wesleyan Schools. Private houses have been utilized for headquarters and

CO-OPERATION WITH MILITARY AUTHORITIES.

other buildings as guard and store rooms. Social comforts have been freely arranged for by the kindness of residents in all parts of the district. Before occupation of the various buildings much work was expended in arranging for the sanitary conveniences, &c., for the troops. Hospital accommodation in the first place was available at the Children's Convalescent Home (50 beds) and at the Cottage Hospital and also six beds at the Hall. Owing to the increasing number of men arriving and expected in the district, additional hospital accommodation is being rapidly supplied, mainly by voluntary contributions. Verminous conditions have made it essential to again steam sterilize the uniforms, clothing, bedding and rooms used by the men, this method up to the present time having proved efficacious. To avoid delay in dealing with so great a number of different articles, it was found necessary to make an arrangement for the use of a steam disinfecter in an adjoining district, in addition to the plant of the Joint Hospital Board."

DISTRICT D.—"The Medical Officer of Health is in co-operation with the Military Authorities in charge of the camp for prisoners of war. The Council, at the request of the Military Authorities, is removing excreta from the camp, which, in the absence of sewers in the neighbourhood, has to be put in trenches. If the Military Authorities make no further provision, this will doubtless prove very objectionable after the cold season."

DISTRICT E.—"At the camp three cases of diphtheria and one scarlet fever were removed to the Isolation Hospital. None, however, proved to be true cases. A case of pulmonary tuberculosis was also notified from this camp, the patient being admitted to a sanatorium. One case of scarlet fever occurred at the Hill Station and was at once removed to hospital for treatment. The rooms and clothing of the patients and of all contacts were subjected to vigorous disinfection, the work being carried out by the Council's employees and steam sterilizing at the Joint Hospital.

"Verminous conditions made it necessary at times to sterilize the whole of the clothing and bedding used by the men; this work was arranged for with the Local Authorities and was done to the entire satisfaction of the Military Authorities, both as regards time and efficiency. Every possible assistance has been given from this department with regard to sanitary circumstances and outbreaks of infectious disease and systematic inspections have been made."

DAIRIES, COWSHEDS AND MILKSHOPS.

Dairies, Cowsheds and Milkshops.

The amount of public attention which has been directed to a pure milk supply during recent years has borne good fruit. The value of plenty of air-space, good means of lighting and ample ventilation is becoming more and more appreciated by the large majority of farmers. The average milk seller has, however, a good deal yet to learn and until stringent and detailed regulations are not only made but strictly enforced much of the milk sold will be liable to contamination after it has left the farm. The reports shew clearly that increasing attention is being given to these matters by Sanitary Authorities and their officials.

The following leaflet of instructions for ensuring the supply of clean milk, prepared by the Joint Committee on Milk of the National Health Society and the National League for Physical Education and Improvement, is worthy of careful attention on the part of all householders :—

THE MILK SUPPLIED.

“The consumer should protect his family by obtaining pure and clean milk.

“Pure milk should show no deposit whatever at the bottom of the vessels in which it is kept. If there is any deposit, complaint should be made at once to the dairyman and if the deposit continues after complaint, the dairyman should be changed.

“Milk from a clean farm will keep much better than milk from a dirty one.

CONTAMINATION IN THE HOME.

“Diarrhœa, typhoid fever, scarlet fever, diphtheria and other serious diseases may be brought about by contamination of milk within the consumer's house.

“Such contamination occurs from :—

- (1) Improperly cleansed milk vessels.
- (2) The storage place being unsuitable.
- (3) The receptacles being uncovered.
- (4) Flies and dust.

CLEANSING MILK VESSELS.

“Immediately after use milk vessels should be thoroughly rubbed and washed out with cold water and then dipped into boiling water and left there for some time ; or, if too large, thoroughly scalded with boiling water.

DAIRIES, COWSHEDS AND MILKSHOPS.

PLACE OF STORAGE.

“The storage place should be in a well-ventilated, clean and cool pantry or cellar and *not* in a warm or dusty kitchen.

“Souring is due to the rapid increase in the number of germs in the milk and if milk is kept cool these germs do not multiply so rapidly and souring is thereby delayed.

“That is the reason why milk keeps much better in winter than in summer.

“Warmth is equally favourable for the multiplication of many disease-producing germs in milk. The milk must, therefore, be kept at as low a temperature as possible.

“The milk-jug should be placed in a basin of cold water in summer-time.

“Even under the best conditions it is undesirable to keep fresh milk for any length of time.

COVERED VESSELS.

“All milk should be kept in covered vessels to prevent the entrance of flies and dust.

“It is a mistake to suppose that milk will not keep sweet if it is covered.

FLIES.

“Flies carry on their legs an enormous number of germs, among which may be those that cause diarrhœa, typhoid fever and other diseases.

“Within the house, therefore, the greatest care should be taken to prevent flies from reaching the milk.

“Flies breed on all kinds of manure and decaying matter. Such material should, therefore, be kept covered and be removed as soon as possible. Ashpits and middens should be cleaned out at least once a week. The eggs of flies may hatch out in eight to ten days.”

Writing on the subject of tuberculosis in cattle, Professor J. M. Beattie, of the University of Liverpool, makes the following

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very practical suggestions, which I feel sure will be found of interest:—

“Finally, I would advocate the following:—(1) A systematic examination of all dairy cows three or four times a year by competent veterinary surgeons. (2) This examination should consist of a thorough palpation of the udder when empty and, if any suspicious nodule is felt, a sample of milk should be taken from that quarter, *using energetic massage*, a second sample from the rest of the udder and a third sample from the mixed milk of all the non-suspicious animals. Of course samples should also be taken from any cows which show emaciation or any other sign of tuberculosis, apart from udder infection. (3) These samples, which, of course, are taken with great care as to cleanliness, should be submitted to microscopical examination by a competent and trained microscopist and inoculations made into guinea-pigs of the deposit from at least 100 c.c. of the milk. (4) If the microscopical examination reveals bacilli which show the typical characters of *B. tuberculosis* and the clinical examination also points clearly to tuberculosis, then I think the authorities are quite justified in slaughtering the animal. (5) If, however, bacilli resembling *B. tuberculosis* are found on microscopical examination and the clinical evidence is indefinite or negative, *the cows should be strictly isolated, preferably on a farm away from the dairy and the authorities should await the inoculation result*, though further microscopical examinations should be carried out during the period of waiting. If this inoculation is positive the animal is slaughtered, but if negative the cow is returned to the dairy and the dairyman is compensated for the loss of milk. (6) If no organisms resembling *B. tuberculosis* are found on microscopical examination, but the clinical examination is ‘suspicious,’ again the cows should be isolated, inoculation results waited for and further microscopical examination carried out during the period of waiting. (7) If no bacteria resembling *B. tuberculosis* are found and there is no clinical evidence of tuberculosis, these animals are meanwhile declared free, but this freedom should in all cases be confirmed by inoculation of the milk into guinea-pigs.

“By adopting such a system, I feel that the dairyman will not suffer any hardships and that in a comparatively short time we would have eliminated the whole of our tuberculosis cattle from our milking herds. At one inspection a tuberculous animal may be missed even with this rigid system, but it is not likely to be missed a second time. Further, the more carefully the milk is taken the less in number will be the cases in which the microscopical examination is suspicious and the clinical evidence

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indefinite or negative. Very soon we should have to isolate only those animals in which the clinical evidence was markedly suspicious and the milk of these cows would not be used for human consumption until the bacteriologist had declared it free from *B. tuberculosis* by the inoculation method."

The following is a copy of my Annual Report made under the Public Health (Milk and Cream) Regulations, 1912:—

In accordance with the specific instructions of the Local Government Board I beg to submit my Annual Report on the action taken under the above regulations. Mr. W. D. Laird, Chief Inspector, has very kindly prepared a number of statements and statistics to enable me to report.

PRESERVATIVES.

From these statements it will be seen that 444 samples (427 of milk and 17 of cream) have been examined for preservatives. The County Analyst makes it his routine practice to examine every sample of milk for all known preservatives. In only one case of milk was any preservative discovered (see note under Table I.) In 13 of the cream samples preservative was discovered and in each of these cases the receptacles were not marked in compliance with the regulations. None of the cream samples contained any thickening substance.

In only one case of cream sold as "preserved cream" was the label at variance with the regulations and here the omission took the place of not declaring the amount of preservative contained in the receptacle.

TABLE I.—PRESERVATIVES.

MILK—

No. of samples examined for preservatives	...	...	427
„ in which a preservative was found	...	...	1

Note.—This sample contained boron preservative=17·5 grains boric acid per gallon. The seller was summoned and fined 5/- together with 21/- costs.

CREAM—

No. of samples examined for preservatives	...	...	17
„ in which a preservative was found	...	...	13

Note.—"Cream" was asked for in purchasing the 38 samples dealt with in this report and in 13 instances preserved cream was served in receptacles not properly labelled. All these cases were specially inquired into and where the amount of preservative was relatively small and the offence was committed in ignorance the seller was cautioned. In three of the more serious cases the sellers were summoned and convicted.

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PRESERVED CREAM—

No. of samples having correct statements on label	20
„ „ incorrect „ „	1
„ „ with milk fat above 35 per cent.	...	...	21
„ „ „ below „ „	...	...	Nil
*Cases of non-observance of regulations as to labelling, &c.	..	..	1
Samples containing thickening substances	...	...	Nil

* This sample was labelled Preserved Cream but there was no statement as to the amount of preservative.

In dealing with the above samples the provisions of both the Milk and Cream Regulations and the Sale of Food and Drugs Acts were kept in view but, as it was considered easier to prove the cases under Sec. 6 of the Sale of Food and Drugs Act, all prosecutions were taken under this Section.

Table II. explains itself without very much comment. It will be observed that legal proceedings were not instituted where the offence was a first one and was not serious in character or, of course, where the infraction of the regulations merely occurred in a "test" sample. Test samples have always been followed up by the taking of a formal sample after the expiration of a reasonable time and the results of this procedure have shewn that the vendor did not always pay judicious attention to the warning.

I have had several conferences with the County Analyst and your Chief Inspector as to the procedure to be adopted and there has never been any question between us as to the policy to be pursued.

I note with pleasure that amongst the objects of Treasury Grants for specific research that of the cellular content of milk is included. I have advocated this for some years and I trust that a definite conclusion may be reached, both for the sake of the public and of the milk dealer. The several separate investigations so far conducted have only intensified the difficulty of the position.

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TABLE II.—Shewing the percentage of Preservative found in each Sample of Cream or Preserved Cream submitted to the Public Analyst during the year ending 31st December, 1914.

Identification No.	Cream or Preserved Cream	Percentage of Preservative expressed as Boric Acid		Remarks.
		on declaratory label.	certified by Analyst.	
717	Cream	No label	0·2	Seller cautioned
719	"	"	Nil	
720	"	"	Nil	
782	"	"	0·093	Seller cautioned
783	Preserved Cream	0·5	0·05	
784	Cream	No label	0·03	
785	"	"	0·06	" "
824	"	"	0·09	" "
1719	Preserved Cream	0·5	0·14	
1720	"	"	0·19	
1723	"	"	Nil	
1724	"	"	0·17	No declaratory label. Seller cautioned.
1769	"	Unlabelled	0·08	
1770	"	0·5	0·11	
2606	"	"	0·16	
2617	"	"	0·36	
2618	"	"	0·19	
2691	"	"	0·14	Test sample, see formal sample No. 2704
2692	"	"	0·62	
2693	"	"	0·26	
2704	"	"	0·25	Formal sample corresponding with 2692
2706	Cream	No label	Nil	Tinned Cream
2707	Preserved Cream	0·5	0·13	
2804	"	"	0·17	
2842	Cream	No label	Nil	Tinned Cream
2845	Preserved Cream	0·5	0·11	
3734	"	"	0·12	
3736	Cream	No label	0·123	Test sample, see formal sample 3739
3738	Preserved Cream	0·5	0·23	Seller cautioned
3739	Cream	No label	0·057	
3797	"	"	0·11	
3800	Preserved Cream	0·5	0·16	Test sample, see formal sample 3815
3803	Cream	No label	0·14	
3815	"	"	0·23	
3937	"	"	0·11	Seller fined 10/- and 15/6 costs see also sample 3963
3942	Preserved Cream	0·5	0·09	Seller prosecuted and fined 10/- and 15/6 costs
3962	Cream	No label	0·19	Test sample, see formal sample 3962
3963	"	"	0·425	Seller cautioned as there were facts in the case which rendered a conviction doubtful Seller fined 40/- and 15/6 costs (2nd conviction)

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The following statement is summarised from the quarterly reports of the County Analyst and shews the high standard attained in milk production in this County :—

TABLE III.—Shewing Samples of Milk arranged in order of quality as judged by Total Solids and Milk-fat.

TOTAL SOLIDS in Milk.					No. of Samples.		Percentage.
Under 11 per cent.	...	...	...	...	4	...	·92
Over 11 and under 11·5 per cent.	...	...	...	...	19	...	4·6
„ 11·5	„	12·0	„	...	31	...	7·1
„ 12·0	„	12·5	„	...	87	...	20·0
„ 12·5	„	13·0	„	...	144	...	34·0
„ 13·0	„	13·5	„	...	93	...	21·42
„ 13·5	„	14·0	„	...	41	...	9·4
„ 14·0	„	...	...	...	15	...	3·46
					<hr/>		
					434		
					<hr/>		
FAT in Milk.							
Under 3 per cent.	...	...	...	...	18	...	4·14
Over 3 and under 3·25 per cent.	...	...	...	...	94	...	21·65
„ 3·25	„	3·5	„	...	101	...	23·5
„ 3·5	„	3·75	„	...	89	...	20·5
„ 3·75	„	4·0	„	...	56	...	12·9
„ 4·0	„	4·25	„	...	38	...	8·75
„ 4·25	„	4·5	„	...	19	...	4·37
„ 4·5	„	...	...	...	19	...	4·37
					<hr/>		
					434		

The presence of ‘dirt’ in milk is sought for systematically, the term ‘dirt’ including organic debris and fine inorganic or mineral deposit (dust, &c.). It is satisfactory to note that in very few samples indeed did the amount of ‘dirt’ exceed 10 parts per million. The quality rather than the quantity of this undesirable foreign ingredient is, of course, the important factor and chemical analysis does not disclose this.

I append certain interesting extracts from the reports of the District Medical Officers of Health and Inspectors :—

DUKINFIELD MUNICIPAL BOROUGH.—“The Tuberculosis Order, 1913 (Dairies), necessitates the inspection of cattle and milk for tuberculosis. Two cases during the year have come under the notice of the authority and were promptly dealt with. Inspections of the various dairies and cowsheds and milkshops are regularly carried out. In some cases there is insufficient air space and in many cases the lighting and ventilation could be improved, but these matters are receiving the attention of landlord and tenant. In nearly every case the dairies and utensils are kept scrupulously clean.

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“Regulations for the carrying out of the Dairies, Cowsheds and Milkshops Order of 1885 were adopted by your authority in 1887. In 1904 further regulations were adopted by your Council on the basis of the model Bye-laws of the Local Government Board. In some cases there is not sufficient air space and the lighting and ventilation of these buildings could be improved. I have made 250 visits to these cowsheds, &c., and I find in every case the dairies and utensils are kept scrupulously clean. The cowsheds, as a whole, are in good condition and highly creditable so far as cleanliness and tidiness and there is a general desire on the part of the local farmers to comply with the requirements. One new cowshed has been built by the estate for Mr. John Reece, Victoria Farm. The building is in accordance with the requirements of the Board of Agriculture. As regards the milkshops every care will be taken in the future to see that all the requirements of the regulations recently come into force are carried out. The total number of farms in the district is 15.

No of Dairies.....	15.	No. of Inspections during 1913...	64
„ Cowsheds	35.	„ „	... 200
„ Milkshops	13.	„ „	... 50

“The total number of cattle for dairy purposes on November 8th, 1914, was 358.

“Twelve out of 15 farms are supplied with water direct from the public mains on the constant system, the remaining three from a private reservoir belonging to the estate, fed by a hydraulic ram and constructed at an elevation sufficient to give a constant supply. The drainage is very satisfactory.

“The following figures may be of interest :—

Number of farms in the district	...	...	15
„ Dairy cattle in the district	...	...	358
„ Pig keepers	„	...	55
„ Pigs	„	...	510

“These figures represent the stock in the district on November 8th, 1914.”

HYDE MUNICIPAL BOROUGH.—“There are 45 persons registered as cow-keepers and 18 registered milkshops. One hundred and three visits of inspection have been paid to the cowsheds and 48 visits to the milkshops during the year. Twenty-three notices have been served for non-compliance with the regulations.”

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STALYBRIDGE MUNICIPAL BOROUGH.—The Inspector reports :—
 “ The farms within the borough number 33 and these include 55 separate cowsheds and 21 dairies. These premises have been inspected as in previous years, and are, generally speaking, kept in a cleanly condition, better attention being given to the removal of the manure than in former years. Few improvements have been carried out during the year at the farms that still require alterations and renovating to place them on a satisfactory basis. The six farms that were reported upon and visited by the Visiting Sub-Committee in 1913 have not received any attention up to the close of the year. Minor defects have been dealt with, such as insanitary closet accommodation, want of through ventilation, offensive smells from drainage systems and manure accumulations. The milkshops within the borough, which number 55, have been periodically inspected. There has been no necessity to complain of the storage of the milk on these premises during the year.”

HIGHER BEBINGTON URBAN DISTRICT.—“ Milk is sent from the district to Birkenhead and Liverpool. There are six registered cowsheds, two dairies and two milkshops. These were subjected to regular inspection. The milkshops are clean and the retailers recognise the necessity for scrupulous cleanliness. Lime washing is carried out with regularity.”

LOWER BEBINGTON URBAN DISTRICT.—“ On the registers there are eight cowkeepers and 15 dairymen. During the year there has been marked improvement in the keeping of milk vessels in a covered condition so that their contents do not become contaminated by dust and flies. Much of the milk sold in the district is purchased from the farmers in the neighbouring rural area. Lime washing is done with regularity. It was not found necessary to serve any statutory notices, but eight informal ones were sent out.”

BOLLINGTON URBAN DISTRICT.—“ Milk is supplied to the district by the various farmers around. Those whose farms are actually situated in the district are regularly inspected and their shippens required to be limewashed at least twice a year. As to the question of air-space mentioned in last year's report the matter has been brought to the notice of the Nuisance Inspector, who will go into the matter. The attention of the purveyors of milk is again called to the necessity of their having proper vessels for its reception.”

BREDBURY AND ROMILEY URBAN DISTRICT.—“ The milk supply is abundant and of good quality. It is almost all produced in the

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district and most of it is despatched direct from the farms without any intermediate storing or delay. The only case of unhealthy cattle was discovered by the Sanitary Inspector when inspecting the dairies and cowsheds. The cow was not being milked and was sent away to the knacker forthwith. The average number of milking cows kept in the district is 500 and I am satisfied that they are in good condition and well cared for. There have not been any prosecutions for adulterated milk during the year."

BROMBOROUGH URBAN DISTRICT.—"All the milk produced locally is consumed in the district. The cowsheds are inspected, monthly, limewashing is done with regularity twice in the year and a state of cleanliness is maintained."

CHEADLE AND GATLEY URBAN DISTRICT.—"There are 42 dairies, to which are attached 79 cowsheds. There are three milkshops in the district. They have all been regularly visited by your Inspector and they are all on the whole clean and the animals well cared for. Two cowsheds have been altered and the lighting and ventilation improved. In my other annual reports I have remarked in the great improvement there is in the lighting, ventilation and the cubic space per cow as compared with formerly. In the majority of cases there is now over 600 cubic feet of space per cow. Out of the 79 cowsheds there are only fourteen with a cubic space per cow under 600 cubic feet and there are none under 400 cubic feet."

COMPSTALL URBAN DISTRICT.—"The milk supplied by the farmers residing in and out of the district is good and wholesome. No prosecutions reported. The cans and utensils are kept clean. The farms in the district have been inspected and found free from any sanitary defects. Cowsheds are limewashed twice a year. Cowshed rules have been distributed amongst the farmers."

ELLESMERE PORT AND WHITBY URBAN DISTRICT —"The milk supply is mostly from cows within the district or from the immediately adjoining portion of the rural area. Many of the cowsheds are not up to the standard of modern requirements. Limewashing, as a rule, is done with regularity; but as the cowsheds are in the possession of tenants, they do not see their way to undertake alteration in their landlords' property. In some instances the shippens are mere wooden sheds which, although erected for temporary purposes, have been allowed to persist. It has to be remembered that for the greater part of the year the

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shippens are empty and it can be said for the ricketty wooden buildings that they are well ventilated. There are 36 dairies, cowsheds and milkshops and two purveyors who bring milk into the district. Consequent upon a complaint being investigated, the owner has promised to submit plans for the erection of a model cowshed."

HALE URBAN DISTRICT.—"The milk supply of the district I consider good. A portion is from farms situate within the district, but the main supply is from farms in adjoining districts. There are in the district five dairies, three cowsheds and seven milkshops and these have been regularly inspected, in all 99 inspections have been made. No notices have been necessary."

The Inspector reports:—"The milk in the district is supplied by 44 vendors, only 15 of whom are resident in the district, the remaining 29 being from neighbouring districts. One of the vendors, however, who resides just outside the district, procures his milk from a cow-keeper in the district. Those resident in the district are:—

Cowkeepers...	...	3	} Of whose premises 88 inspections have been made.
Dairymen ...	...	5
Purveyors of Milk ...	...	7

"With one exception no fault can be found with the condition of the premises and no notices, written or verbal, have been necessary. The exception, as reported last year, is, unfortunately, in connection with a practice which cannot, with present powers, be stopped, that is a small 'general dealer' who sells milk out of his shop in which are stored potatoes and other vegetables, crockery, tobacco, etc., in close proximity to the milk, it being, in premises such as these, practically impossible to keep the milk perfectly clean, as there is always a quantity of dust floating about. I have required this vendor to keep the milk vessels covered with muslin, which forms some protection, but I am far from satisfied that he carries out this requirement. Under the new Milk and Dairies Act, which comes into force on 1st October, 1915, it is probable that the Local Government Board will make regulations which will meet such cases."

HAZEL GROVE AND BRAMHALL URBAN DISTRICT.—"The milk supply is abundant and of good quality. It is all produced in the district and is despatched direct from the farms without any intermediate storing or delay."

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HOLLINGWORTH URBAN DISTRICT.—“The milk supplied to this district is almost entirely produced on farms within the district and during 1914 there were no complaints as to either quantity or quality. At the close of 1914 the register showed 16 dairies, 16 cowsheds and no milkshop.

“I have no complaints to mention against any of these and no faults have been reported to me.”

HOYLAKE AND WEST KIRBY URBAN DISTRICT.—“The neighbouring rural areas supplies a large proportion of the milk consumed and the traders inform me that during the last few years the quantity imported has increased, while the amount produced in the district has steadily decreased. The City of Liverpool is a collecting centre for milk from Cheshire and Shropshire and from it distribution takes place in Hoylake and West Kirby. At times a portion of the supply is received from Rossett in North Wales. Utensils, storage places and surroundings of the dairies are all subjected to inspection at short intervals and suggestions for improvements are made to the purveyors and willingly adopted by the majority of them. There are 29 dairies and milkshops and 12 cowsheds on the Council's register. It was found necessary to serve one statutory notice and five informal notices were issued and complied with. As mentioned in previous reports, in some of the outlying and more rural portions of the district there is still a tendency to keep large manure middens in close proximity to the shippens. The inadvisability of this habit has been pointed out to the farmers. No action has been taken in regard to the detection of tuberculous milk. The pamphlets of the Board of Agriculture relating to structure of cowsheds and cleanliness of the dairy have been circulated among interested persons.”

KNUTSFORD URBAN DISTRICT.—“There are now four cow-keepers, three cowkeepers and purveyors and two purveyors (besides three purveyors outside the district). All the premises within the district are periodically visited and are generally found in a clean and satisfactory condition. An additional searching examination was made in November in connection with a few cases of diphtheria and all persons engaged in the business, including those who only delivered milk, were visited at their homes and full investigation made as to their health, but nothing was found to raise suspicion as to the milk supply. Lime-washing has been attended to. The cattle are clean and in good condition. No structural alterations have been made.”

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LYMM URBAN DISTRICT.—“The dairies are 32 in number. They are regularly inspected and found in good condition. At one only are other commodities than dairy produce sold.”

MARPLE URBAN DISTRICT.—“The milk supply is good and greater care has been taken as to cleanliness (hands, udders and utensils) since my last report. No action had to be taken under the Dairies, Cowsheds and Milkshops Acts, only two owners having been warned.”

MIDDLEWICH URBAN DISTRICT.—“The milk supplied is of very good quality. Samples are taken periodically and are reported good. Dairies are clean, cowsheds are whitewashed and cleansed and all are inspected regularly.”

MOTTRAM URBAN DISTRICT.—“There are 23 dairies and cowsheds on the register. These have been visited both by the Inspector and myself. There are three which I shall be obliged to bring specially before your notice, if the landlord does not build new ones, or so reconstruct the old ones as to meet with your approval. I should also like to impress upon the farmers the necessity of keeping their cattle clean and also frequently whitewashing the cowshed immediately behind where the cow stands. When better cowsheds are provided these points must be insisted upon.”

NANTWICH URBAN DISTRICT.—The Inspector remarks:—“The milk consumed within the town area is derived mainly from outside sources. There are situate within the district 11 dairy farms and cowsheds on which are milked 75 cows. The whole supply is consumed in the town. These farms are all under inspection, most of them being in excellent condition. The land on which the cows are fed is rich pasture and well provided with water. I should say the milk produced on these farms is wholesome. Only one addition has been made during the year to the register of the dairies and milkshops in the district and two have been removed from the register, the business having been discontinued.”

NESTON AND PARKGATE URBAN DISTRICT.—“There are 26 persons registered under the Dairies, Cowsheds and Milkshops Order. The district continues to send large quantities of milk to Birkenhead and Wallasey. Limewashing has been done with regularity—no statutory notices were required. In every instance cows are only kept in the shippons during

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the severe winter weather and are turned out to graze whenever possible. The neighbouring Rural District sends a quantity of milk into Neston. The milk sold is wholesome. There were no prosecutions, but one sample on analysis was found to be 16 per cent. deficient in fat and a corresponding sample from the cows was also found to be deficient in fat. No bacteriological examinations of milk have been made during the past year."

NORTHWICH URBAN DISTRICT.—"There are eleven cowsheds on the register, which is the same number as last year. One has had the shippens re-constructed and re-drained with milk house and office complete. Two were required to remove a manure heap. This was carried out at once. The usual limewashing has been carried out since during the year. No samples of milk have been taken for analysis and no infectious disease has been found on any of the premises. There are fourteen milk sellers in the district and a number enter the district for the purpose of purveying milk. These have been several times visited and each time their premises and utensils found to be clean and in good order."

SALE URBAN DISTRICT.—"The cowsheds (7), dairies (7), milkshops (15) were inspected from time to time and were found clean and satisfactory as to utensils, cattle and their stalls and surroundings. The milk supply of the district is good."

SANDBACH URBAN DISTRICT.—"During the year all the cowsheds which did not previously comply with the Regulations have (with the exception of one) been improved and made satisfactory. In connection with these new windows and drains have been provided for the shippens of Fields Farm, Crabmill Farm, Brook Farm and the Commons Farm. The one outstanding is at Taxmere Farm and this is to be practically re-built and extensively altered. A circular letter was sent by the Sanitary Inspector to each cowkeeper in the district emphasizing the necessity of limewashing and pointing out the requirements of the Regulations in this respect and it resulted in better attention being paid to this important requirement. The milk supply is plentiful and very good. Being an agricultural district the milk supply is far in excess of the demand and the bulk is sent to milk factories at Sandbach and Middlewich. That part retained for the town's use is sold by milk sellers and farmers and no fault has been found with the milk during the year."

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WILMSLOW URBAN DISTRICT.—“There are 40 cowsheds, four dairies and 1 milkshop on the register. The quality of milk supplied is satisfactory. Regulations are in force under the Dairies, Cowsheds and Milkshops Order. All the premises were inspected during the year. The premises and cows, with a few exceptions, are fairly well kept. No action was taken during the year by your Council in regard to tuberculous milk. There is no inspection of cows for tuberculosis. A periodical inspection by a veterinary surgeon would be of great value.”

WINSFORD URBAN DISTRICT.—“It is out of my power to certify the wholesomeness of the milk, as there is no local action under the Food and Drugs Act and milk is not sent from the district to Manchester, which, in some other districts, is a source of information about tuberculous milk, as to which (as it is) I have no knowledge. Four reports of cattle suspected to be suffering from tuberculosis were received from the police and in two cases the animals were slaughtered.”

Mr. Hickson reports:—“One hundred and eighty notices to cleanse and limewash premises have been served on owners or occupiers and subsequent inspection showed that on the whole the work had been carried out. In a few cases of default compliance with the Regulations was secured. At some of the older buildings, owing to faulty structure, consistent cleanliness is difficult to maintain. Surprise visits have been made to the premises, at times by myself and often in company with Dr. Garstang, resulting in improved drainage and other works required being carried out. Two new cowsheds, erected in compliance with modern methods, have, during the year, replaced old and defective buildings and arrangements are completed for extensive structural alterations in connection with two other faulty buildings (the work to be commenced during the spring of 1915) as a result of personal negotiation with the owners. A copy of new Regulations, with respect to Dairies, Cowsheds and Milkshops, adopted by the Council and which came into force on the 1st January, 1914, has been placed in the hands of all cowkeepers, etc.”

YEARDSLEY-CUM-WHALEY URBAN DISTRICT.—“Inspection of dairies and cowsheds has been carried out systematically during the year. In several places where there was not sufficient air-space cows were removed into other quarters. In one case, however, where the air-space was not sufficient, tem-

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porary satisfactory arrangements were made pending certain necessary alterations which were promised to be carried out in the spring."

BUCKLOW RURAL DISTRICT.—"Inspections of dairies and cowsheds have been carried out in the usual systematic fashion by Mr. Metcalfe, who reports as follows:—

"The work in connection with dairies and cowsheds has been carried out on similar lines to previous years. Much attention was given to the cleanliness of cows, milk vessels, cooling apparatus, milkers and the methods of carrying on the milk business generally.

"There are still a few 'slackers,' but it was not found necessary to take any legal action to enforce the requirements asked for. An attempt has been made whilst visiting farms to obtain some improvement in the 'housing' of the young stock and I am pleased to be able to report that my efforts in this direction have met with some satisfactory results. There is room for a great deal of improvement yet, as I can still state, as last year, that the calf cote is without exception the darkest and filthiest place about the farm.

"One new cowshed was built during the year and three remodelled and small improvements carried out at many others.

"There are in the district 518 cowkeepers, 228 being milk-sellers and six milksellers not being cowkeepers.

"Where structural amendments were required to cowsheds statutory or informal notices were served and the usual lime-washing notices sent out in May and October.

"So far as this part of the work is concerned I can report satisfactory progress.

"Six tuberculous cows were reported by the Medical Officer of Health of Manchester Corporation. The cows and farms implicated were in Plumbley two, Marthall one, Oller-ton one, Styal one and Mobberley one.

"They were all slaughtered and dealt with in the usual way by the County Police, with the exception of the case in Styal. This cow was slaughtered at the Manchester Abattoirs

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and all the carcase was passed as fit for human food. Strict attention was given to the thorough cleansing and disinfecting of each of the cowsheds."

CHESTER RURAL DISTRICT.—"The number of registered premises at the close of 1914 was dairies three, cowsheds 183, milkshops one. These were all regularly inspected. There were no notices, except verbal ones, served for non-compliance with regulations and no legal actions taken for non-compliance with notices. Several farms have had alterations, additional tying-up space, better lighting, ventilation and drainage accommodation being provided. The milk produced within the district is wholesome and no action has been taken as to tuberculous milk."

DISLEY RURAL DISTRICT.—"Number of dairies on register 21, number of cowsheds on register 21.

"There have been frequent inspections of these and notices served where necessary. One case of tuberculous milk was reported."

MACCLESFIELD RURAL DISTRICT.—"The supervision of dairies and cowsheds has been diligently performed and 275 inspections have been made during the year. Nine cases of tuberculosis of the udder in cows were detected in the district by the Manchester Health Authorities. In each case the cow was slaughtered, permission being given for the sale of the carcase where it conformed to the Local Government Board's requirements. Where defects in the cowsheds were found by the Medical Officer of Health for the County on his inspection, the owners were notified in order that the work might be carried out."

The Surveyor remarks:—"Of milkshops we have not any. The Register of Dairies and Cowsheds contains, after correction, the names of 414 persons. The buildings at 275 farms were inspected. Structural improvements on an extensive scale were made at 19 of them. Cleanliness and limewashing were usually satisfactory. Notices under the Tuberculosis (Cattle) Orders were received with respect to 17 animals, which were afterwards slaughtered or certified free from disease. The suspension of the Order of 1914 during the period of the war has virtually put a stop to the slaughtering of these cattle."

NANTWICH RURAL DISTRICT.—The Inspector remarks:—"The number of cowkeepers and milksellers on the register at the end

DAIRIES, COWSHEDS AND MILKSHOPS

of 1913 was 432. The number at present is 440, an increase of eight. Several of the cowkeepers on the register sell their milk during the winter months only. The supply not being so abundant during this period the prices are consequently higher and hence there is a greater inducement to sell it rather than use it for cheese making.

Number of cowsheds built	...	...	...	8
Stalls rearranged and new feeding troughs	...	...	...	6
Feeding troughs only...	...	...	...	6
Windows put in sheds	...	...	...	11
New drains provided	...	...	...	12
New dairies	...	...	...	2
Dairies redrained, paved and lighted	...	...	...	2

“These improvements reflect great credit upon the owners concerned and evidence a desire on the part of some at least to bring their farmsteads up to the level of modern requirements. The best authorities say that on a well-managed estate the landlord should be content if he receives a clear sum of three-fifths of the gross rental of his farms, thus leaving two-fifths to cover management, renewals, taxes and so on. If he expects to pocket more, then they affirm he is starving the estate. An agent for a very large estate in your district declared to me some time ago that the owner of the estate for years past had spent more than half his income in improving it. If the statement be correct (and I don't doubt it) landlordism is not such a profitable concern as formerly. Still much more remains to be done if the cowsheds, etc., are to be brought up to date and landlords would be well advised to make the necessary improvements before the New Milk, etc., Bill comes into operation in October next.”

NORTHWICH RURAL DISTRICT.—“There are 367 dairies and cowsheds registered at the close of the year and 157 of them have been inspected during the year and the results of these inspections and the meetings of the Standing Committees have resulted in 10 farms being brought up to the requisite standard by the owners. No notices for non-compliance with regulations nor any legal notices have been served.”

The Inspector remarks:—“Of the 397 registered cowsheds and dairies in the district, four have been registered during the year. The systematic inspection of these farms and my reports thereon to the Standing Committee resulted in the committee

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meeting the owners of 10 farms where the cowsheds did not conform to the regulations, who in each case promised to carry out the various improvements suggested by the Committee. Notifications have been received from the police in reference to 13 cows suffering from tuberculosis in various forms. In each case the premises where the diseased beast was found have been inspected and where any defects in sanitary arrangements were discovered steps have been taken to remedy same."

RUNCORN RURAL DISTRICT.—"The number of persons registered for the sale of milk varies from year to year. In 1914 there were 201 of such; of these, by far the greater number possess or control 'cowsheds' under the 'Dairies,' etc., Order of 1885, from which the milk is forwarded to the larger industrial centres of population. In practically all cases, the milk is dealt with entirely outside the dwelling-houses and, as far as practicable, by persons who do not reside on the premises; but should any infectious disease occur on the premises, the further sale of milk is (1) either prohibited altogether during the continuance of the disease on the premises or (2) is dealt with in accordance with the local regulations adopted by your Council, under the Dairies, Cowsheds and Milkshops Orders of 1885 and 1899. These regulations are strictly enforced within your district in the event of the occurrence of infectious diseases."

TARVIN RURAL DISTRICT.—"The number of registered premises at the close of 1914 was 73; these were regularly inspected. Three notices were served for non-compliance with the regulations, but no legal actions were necessary. The milk produced within the district is wholesome. Several actions have been taken with regard to tuberculous milk and the diseased cows slaughtered. Very few of the registered dairymen have sold milk during 1914 until the last few months of the year, as most of them make cheese in the summer. The cowsheds are all clean and well-kept, but most of them are short of ventilation and have inside gulleys. There are very few shippens with the 600 cubic feet of air space per cow as suggested by the Board of Agriculture and Fisheries. Most dairymen turn their cows out during some part of the day in winter and keep them out night and day in the summer."

TINTWISTLE RURAL DISTRICT. — "Regulations under the Dairies, Cowsheds and Milk Shops Act were made by the Council in 1901, and came into force in October of the same year. There are 62 cowkeepers registered in your district. Two new cowsheds

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were built during the year and plans for two more have been passed by the Council to accommodate 24 beasts. There will be 800 cubic feet of air space for each head of cattle. On the whole the cowsheds are kept clean, and some exceedingly so; in others there is room for great improvement. The attention of the cowkeepers has been drawn to the splashing on the wall immediately behind the cows. This portion of the wall should be whitewashed three or four times from October to May. The cleaner the cows are kept, the better they look and more milk they will give."

The Inspector remarks:—"Plans have been submitted and approved during the year for the erection of two new cowsheds to accommodate 24 beasts, each shed having a cubic capacity of 800 feet for each beast. These are to take the place of old ones. The new cowsheds for 32 beasts have been erected and occupied during the year, plans of which were passed last year. The number of cowsheds and dairies registered is 62. I have made 159 inspections of these. Taking them on the whole they are kept clean as regards the removal regularly of the manure. As regards limewashing they are also clean, except that during the months from October to May a portion about four feet high from the floor gets dirty soon and I am drawing the cowkeepers' attention to the necessity of limewashing these portions oftener. Of course this does not apply all round, as some cowkeepers are very particular and do it regularly."

WIRRAL RURAL DISTRICT.—"There are 265 licensed cowsheds and milk sellers in your district. Not only are the neighbouring urban districts supplied, but also the towns of Birkenhead, Wallasey and Liverpool. The cowsheds are regularly inspected and frequent lime washings insisted upon wherever they are required. The shippens vary from the model dwellings of wealthy persons who make farming a hobby down to primitive sheds where both ventilation and lighting are deficient. During the last ten years there has been a considerable advance in the provision of light and air for the animals, as there is a general recognition of the fact that cows are more profitable when well housed. The arguments used against further improvement in this direction are generally (1) that it is the occupier who is called upon to do the improvement and not the owner, which is unfair; (2) that better housing is not required as the cows are in the open air most of the time. At some of the farms the milking arrangements are of a model kind. No inspector with veterinary knowledge has been appointed to examine the cows."

CANAL BOATS—OTHER PREMISES REQUIRING SUPERVISION.

Canal Boats.

There are only a few districts in which the inspection of canal boats calls for special attention, *e.g.*, Runcorn, Nantwich, Middlewich, Northwich, Ellesmere Port, Stalybridge, Altrincham and Winsford. In all these districts supervision has been well maintained.

Other Premises requiring Supervision.

It is evident from the reports received that such premises as slaughter-houses, factories, workshops and workplaces, common lodging-houses, offensive trades, &c., are under regular and satisfactory supervision. It would serve no really useful purpose to quote details on these matters in the absence of special circumstances.

RECOMMENDATIONS.

1. That in view of the great importance of the early recognition of malignant disease the Councils of Municipal Boroughs and Urban and Rural District Councils be urged to make arrangements by which medical practitioners may submit specimens from doubtful cases of such diseases to an expert, at the cost of the Local Authority, where the circumstances of the patient so warrant.

2. That the portion of this Report (Section V.), be separately reprinted and circulated to the members of the Cheshire Insurance Committee.

3. That the Midwives' Act Committee of this Council consider, at an early date, the question of the shortage of midwives in certain areas of the County and, if necessary, confer with the County Nursing Association and other similar associations on this matter.

4. That the several Councils concerned have their attention drawn to the inadequacy of the water supply to the districts enumerated on pp. 171 and 172 of this Report.

5. That the several Councils concerned have their attention drawn to the inadequacy of the system of sewers, or of sewage disposal in the districts enumerated on pp. 195, 196 and 197 of this Report and whilst no pressure be brought to bear upon them to actually carry out any such works during the present crisis, they be urged to carry through all the necessary preliminaries, with a view to the work being facilitated when the crisis is past.

6. That the several Councils mentioned on p. 227 of this Report be urged to secure the abolition of insanitary privy-

middens, wet ashpits, cesspool privies, &c., where such exist in their respective districts with as much expedition as practicable.

7. That the County Medical Officer of Health be authorised in the name of this Council to urge that the inspection of houses within the limits of rental specified in Section 14 of the Housing and Town Planning Act, 1909, should be considerably expedited in those districts where, in his opinion, such inspection is not being satisfactorily carried out and where the appropriate remedies for insanitary conditions disclosed by such inspection are not being adequately effected (see table on p. 263 of this Report).

MEREDITH YOUNG,

County Medical Officer of Health.

Administrative County of Chester.

APPENDIX OF STATISTICS

FOR 1914.

TABLE I.—Population, Area, Births, Deaths, &c.—

Showing enumerated and estimated population, area, persons per acre, births and deaths, birth-rates, and death-rates, proportion of deaths of infants to births, deaths from seven principal zymotic diseases and corresponding death-rates.

TABLE II.—Mortality—

Showing deaths from certain causes, classified according to Diseases, Ages and Localities.

TABLE III.—Infectious Disease—

Showing new cases notified and new cases removed to Hospital classified according to Diseases and Localities and giving particulars as to Isolation Hospital Provision.

NOTE.—The information in these Tables is derived from the returns made by the District Medical Officers of Health on Forms supplied to them by the Local Government Board. The proportion of persons per acre, the deaths from the seven principal zymotic diseases and corresponding death-rates have been added. The population in 1911 and the areas, are from the Report of the Census, 1911.

TABLE I. STATEMENT

prepared from the Reports of Medical Officers of Health of Sanitary Districts in the Administrative County of Chester,
for the year ending 31st December, 1914.

SANITARY DISTRICTS	Population at Census, 1911.	Estimated Population in middle of 1914.	Area in Acres.	Persons to an Acre.	Births.	Birth-rate per 1000 Living.	Deaths.	Death-rate per 1000 Living.	Deaths from							Deaths from Principal Zymotic Diseases.	Principal Zymotic Diseases Death-rate.	Deaths under one year.	Deaths under one year to 1000 Births.	Is Hospital Isolation for Infectious Diseases provided?	Name of Medical Officer of Health.
									Small-pox.	Measles.	Scarlatina.	Diphtheria.	Whooping Cough.	Fever.	Diarrhoea.						
Column Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
MUNICIPAL BOROUGH.																					
Congleton	11809	11810	2572	4.39	293	28.8	159	14.0									50	24	81	Yes. West Heath Joint	Dr. P. M. Davidson.
Crewe	44960	45964	2184	22.41	1032	22.4	538	11.7									60	92	89	Yes. Crewe.	Dr. A. B. McMaster.
Dukinfield	19422	20000	1407	14.21	507	25.3	347	17.3									3.10	76	149	Yes. Hyde.	Dr. J. R. S. Park.
Hyde	33137	34797	3079	11.06	674	20.3	525	15.4									31	85	122	Yes. Hyde.	Dr. J. Bennett.
Macclesfield	34737	34024	3214	10.82	705	20.9	455	13.5									14	107	107	Yes. Macclesfield.	Dr. J. H. Marsh.
Stalybridge	26519	26533	3132	8.56	588	21.8	554	20.6									29	120	204	Small-pox only, Hartshead.	Dr. W. J. Hancock.
	170438	172988	15588	11.09	3819	22.07	2578	14.9									131	473	123		
OTHER URBAN DISTRICTS.																					
Alderley Edge	3143	3200	673	4.71	52	16.2	25	7.8									1.09	6	109	Yes. Monsall.	Dr. G. W. Dowling.
Alsager	2743	2743	2241	1.22	55	20.0	42	15.3									20	32	11	Yes. West Heath Joint.	Dr. H. F. Kingdon.
Altrincham	17813	18249	662	27.56	402	22.0	237	12.2									19	75	79	Yes. Altrincham.	Dr. A. Golland.
Ashton-upon-Mersey	7234	7750	1623	4.77	171	24.0	90	11.6									6	2	11	Yes. Monsall.	Dr. C. J. Renshaw.
Higher Bebington	1689	1775	609	2.55	40	22.5	20	11.2									1	50	1	Yes. Wirral Joint.	Dr. J. B. Yeoman.
Lower Bebington	11491	13164	1051	12.52	341	25.8	183	12.3									17	28	82	Yes. Ditto.	Dr. D. W. Main.
Bollington	5224	5224	1201	4.04	79	15.1	63	10.1									3	57	4	Yes. Macclesfield.	Dr. M. Duggan.
Bowdon	3044	3050	850	3.58	23	7.3	32	10.4									2			Yes. Altrincham.	Dr. F. Cant.
Bredbury and Romiley	8683	9275	3340	2.82	166	17.0	116	12.5									5	11	66	Yes. Hyde.	Dr. J. B. Yeoman.
Bromborough	1974	2021	1673	1.20	45	22.2	16	7.9									1	49		Yes. Wirral Jt. and Pool Works.	Dr. P. M. Davidson.
Buglawton	1438	1438	321	4.43	43	22.8	13	13.1									2	11	53	Yes. West Heath Joint.	Dr. C. H. Godson.
Cheadle and Gatley	9913	11440	5037	2.25	205	19.6	98	9.1									1	100	100	Yes. Monsall and Small-pox Hospital.	Dr. C. H. Hibbert.
Compstall	908	912	903	1.09	10	9.0	9	9.3									1	31	9	Yes. Hyde.	Dr. J. B. Yeoman.
Ellesmere Port & Whitby	10366	13338	3451	3.93	486	26.4	161	11.3									8	60	123	Yes. Wirral Joint.	Dr. T. A. Rothwell.
Hale	8351	9503	1288	7.80	140	14.7	84	8.8									3		64	Yes. Monsall.	Dr. A. Nowell.
Haleford	934	939	1311	7.1	18	19.1	13	13.8									1	10	10	No.	Dr. Thos. Moore.
Hazel Grove and Bramhall	9631	10762	5447	1.97	182	15.0	107	10.0									1	10	61	Yes. Hyde.	Dr. R. Pomfret Wylds
Hollingworth	2580	2581	2086	1.23	39	15.1	26	10.9									1	38	5	Yes. Small-pox, Mottram Moor.	Dr. F. J. Butt.
Hootle	5629	5994	334	17.94	114	24.4	63	11.3									2	66	8	Yes. Chester.	Dr. J. B. Yeoman.
Knutsford	14029	15113	2066	7.81	287	17.6	155	10.2									5	13	48	Yes. Wirral Joint.	Dr. T. W. H. Garstang.
Lymm	3760	3734	1700	3.25	104	19.9	62	11.6									4	104	106	Yes. Monsall.	Dr. E. M. de Jong.
Lymm	4989	5084	4374	1.11	109	21.4	61	12.0									2	30	7	Yes. Lymm.	Dr. H. Burton.
Marple	6483	6600	3055	2.12	115	17.4	82	12.4									5	15	126	Yes. Hyde.	Dr. S. L. Milville.
Middlewich	4909	4957	1082	4.58	119	23.6	57	11.4									4	5	135	Yes. Northwich Joint and Marbury.	Dr. G. J. Awburn.
Mottram	3049	3049	1084	2.81	37	12.1	37	12.1										15	104	Yes. Hyde and Small-pox, Mottram Moor.	Dr. J. D. Munro.
Nantwich	7815	7850	703	11.16	144	18.3	123	15.5									1	4	51	Yes. Altrincham Joint.	Dr. J. B. Yeoman.
Neston and Parkgate	4596	4854	3267	1.48	117	24.1	51	10.7										15	136	Yes. Wirral Joint.	Dr. H. E. Gough.
Northwich	18151	18900	1398	13.51	446	23.8	256	13.5									14	61	139	Yes. Northwich Joint and Marbury.	Dr. H. E. Annett.
Runcorn	17353	17640	1275	13.83	440	25.3	300	17.0									2	28	85	Yes. Runcorn.	Dr. R. T. Turner.
Sals	15014	16110	2006	8.03	328	22.3	190	11.3									1	10	81	Yes. West Heath Jt. & Arclid for Small-pox.	Dr. W. E. Burton.
Sandbach	5723	5723	2694	2.12	123	21.4	72	12.5									2	3	69	Yes. Chester.	Dr. A. Byers.
Tarporley	2604	2591	6195	4.19	68	26.2	27	10.4									1	2	104	Yes. Monsall.	Dr. T. W. H. Garstang
Winslow	8153	8400	5090	1.65	180	15.4	91	11.0									2	9	34	Yes. Davenham and Marbn	Dr. F. G. Allan.
Winstford	10770	10851	5779	1.87	270	24.9	128	11.1									10	28	104	Yes. Hyde and High Peak.	
Yearsley-cum-Whaley	1659	1703	1823	1.29	29	16.9	28	16.1										1			
	244085	253800	80732	3.23	5476	21.15	3032	11.94									82	467	85		
RURAL DISTRICTS																					
Bucklow	22868	23609	57656	4.0	419	18.5	268	12.3									3	4	67	Yes. Monsall.	Dr. T. W. H. Garstang.
Chester	12447	12948	34266	3.7	240	19.4	128	9.8									1	6	40	Yes. Chester.	Dr. W. E. Burton.
Congleton	12821	12845	40152	3.1	299	23.2	157	12.2									2	1	56	Yes. West Heath Joint.	Dr. C. H. Wentworth-Bennett
Disley	2958	3002	2466	1.21	63	17.8	29	9.6									2	1	6	Yes. Hyde.	Dr. G. B. Pemberton.
Macclesfield	16628	16929	79495	2.1	292	17.2	162	9.5									1	4	41	Yes. Macclesfield and Higher Sutton	Dr. R. Proudfoot.
Malpas	4043	4093	21406	5.2	165	22.3	81	17.2									2	15	142	Yes. Chester.	Dr. W. E. Burton.
Nantwich	24905	25466	98467	2.5	515	20.2	297	11.6									4	49	95	Yes. Nantwich Joint and Small-pox.	Dr. R. T. Turner.
Northwich	23270	24100	54308	4.4	548	22.5	274	11.3									1	2	79	Yes. Northwich Joint.	Dr. H. E. Gough.
Runcorn	28216	29170	49139	5.9	573	19.6	329	11.2									2	3	136	Yes. Dutton. Moore (Small-pox).	Dr. J. Adams.
Tarvin	13187	13373	66874	2.3	252	18.8	150	11.2									1	8	79	Yes. Chester	Dr. W. E. Burton.
Tintwistle	2193	2193	13619	1.6	44	20.6	35	16.0									5	2	89	Yes. Mottram Moor.	Dr. G. J. Awburn.
Wirral	19022	22373	36655	6.1	424	18.0	236	10.1									16	3		Yes. Wirral Joint.	Dr. J. B. Yeoman.
	183248	190706	544503	3.5	8724	19.6	2146	11.3									90	47	285		
Administrative County	607771	622494	640828	9.7	13019	20.91	7818	12.55									85	1225	94		

TABLE II.—MORTALITY.

Showing deaths from subjoined causes during the year ending December 31st, 1914, classified according to Diseases and Localities.

DISEASES.	Enteric Fever.	Small-pox.	Measles.	Scarlet Fever.	Whooping cough.	Diphtheria and Croup.	Influenza.	Erysipelas.	Phthisis (Pulmonary Tuberculosis).	Tuberculous Meningitis.	Other Tuberculous Diseases.	Cancer, Malignant Disease.	Rheumatic Fever.	Meningitis.	Organic Heart Disease.	Bronchitis.	Pneumonia (All forms).	Other Diseases of Respiratory Organs.	Diarrhoea and Enteritis.	Appendicitis and Typhilitis.	Cirrhosis of Liver.	Alcoholism.	Nephritis and Bright's Disease.	Puerperal Fever.	Other Accidents and Diseases of Pregnancy and Parturition.	Concussion, Debility and Malformation including Premature Birth.	Violent Deaths, excluding Suicides.	Suicide.	Other Defined Diseases.	Diseases Ill-defined or Unknown.		
SANITARY DISTRICTS.																																
Municipal Boroughs.																																
Congleton .....	...	...	5	1	2	2	...	6	...	3	17	1	1	13	11	20	1	3	1	2	...	5	1	1	10	5	1	47	...	...
Crewe.....	2	...	1	3	6	2	2	1	34	3	7	45	2	8	50	54	30	21	18	2	6	1	13	...	1	10	5	1	47	...	...
Dukinfield.....	3	...	22	5	7	2	4	4	23	4	2	21	2	7	26	32	44	6	23	5	1	...	7	1	4	37	13	10	163	...	...
Hyde	2	...	3	12	2	4	5	1	42	6	9	36	1	12	51	46	41	...	8	1	2	2	14	1	6	37	12	4	59	...	...
Macclesfield	1	...	...	3	1	3	3	...	30	1	9	44	...	...	57	27	26	1	6	...	4	...	24	...	7	28	8	1	102	55	...
Stalybridge	1	...	32	3	13	2	...	1	36	4	10	31	...	4	55	62	47	4	27	2	5	1	14	...	8	34	12	3	142	1	...	
	9	...	58	31	30	15	16	7	171	18	40	194	6	32	252	232	208	33	85	11	20	4	77	3	27	163	73	20	678	65	...	
Other Urban Districts.																																
Alderley Edge.....	...	...	...	...	...	...	...	4	...	...	4	...	...	4	1	1	...	...	1	...	...	...	1	...	...	...	3	1	5	...	...
Alsager .....	...	...	...	1	...	1	...	5	...	...	4	1	...	6	1	2	...	2	...	...	...	1	...	...	...	...	3	1	5	...	...
Altrincham .....	...	15	...	4	...	3	...	13	6	3	16	2	2	32	17	20	6	1	4	...	2	2	...	...	...	5	...	1	11	...	...
Ashton-upon-Mersey.....	...	...	...	1	3	1	...	5	1	2	9	1	...	14	9	10	2	2	1	2	1	2	...	...	...	12	3	...	23	22	...
Higher Bebington .....	...	...	...	...	...	...	...	2	1	...	1	...	...	...	1	1	...	1	...	1	...	1	...	...	...	2	2	...	7	1	...
Lower Bebington .....	...	1	1	5	2	2	...	10	6	4	10	2	...	15	7	12	2	8	...	2	...	4	1	2	...	1	...	...	9	1	...
Bollington.....	...	...	1	...	...	...	...	5	...	...	6	...	1	6	...	5	...	2	2	...	...	3	...	...	...	2	1	1	37	7	...
Bowdon .....	...	...	...	...	...	...	...	2	...	...	4	...	...	3	1	4	...	...	...	...	...	3	...	...	...	2	1	1	10	10	...
Bredbury and Romiley	1	...	4	...	...	1	...	8	3	4	7	1	1	18	3	10	...	...	...	1	2	1	7	1	1	8	5	2	26	1	...
Bromborough .....	...	...	1	...	...	2	...	1	...	...	2	...	1	2	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Buglawton .....	...	...	1	...	...	...	...	...	...	...	2	...	...	1	2	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Cheadle and Gatley .....	...	...	1	...	...	2	...	6	...	1	9	1	...	1	1	3	...	...	...	...	...	2	1	...	...	2	2	...	4	...	...
Compstall.....	...	...	...	...	1	...	...	...	...	...	...	...	...	...	6	10	5	...	1	...	...	1	3	...	...	2	3	2	43	...	...
Ellesmere Port and Whitby	1	...	13	1	12	3	1	5	5	3	8	2	1	10	9	16	...	8	...	4	...	2	...	...	1	1	...	...	3	...	...
Hale .....	...	...	...	...	...	1	...	6	2	...	10	...	1	12	4	4	2	3	...	...	...	4	...	...	...	24	6	1	21	5	...
Handforth .....	...	...	...	1	...	...	...	2	...	...	...	...	...	1	3	...	...	...	...	...	...	...	...	...	...	4	4	...	27	...	...
Hazel Grove and Branchall .....	...	...	...	1	...	1	...	7	...	1	16	...	1	14	13	5	...	...	...	...	1	...	2	...	1	6	4	...	...	...	...
Hollingworth .....	...	...	...	...	1	...	...	...	...	...	6	...	...	1	2	1	...	...	...	...	...	...	...	...	...	4	...	...	11	...	...
Hoole .....	...	...	...	1	1	1	...	5	...	5	5	...	...	7	1	10	3	2	1	...	...	...	...	...	...	4	...	...	...	...	...
Hoylake and West Kirby.....	...	...	1	1	2	...	...	13	2	3	16	1	...	26	3	16	6	5	1	1	...	1	...	1	1	...	...	...	18	...	...
Knutsford .....	...	...	2	...	...	...	...	6	1	1	5	...	1	3	4	5	...	4	...	3	1	1	11	...	...	3	2	2	36	4	...
Lymm .....	...	...	2	...	1	...	...	3	...	1	4	1	...	4	5	5	...	4	...	3	1	1	1	...	...	2	1	...	21	...	...
Marple .....	...	...	...	...	...	...	...	4	...	3	13	...	...	16	11	5	...	5	...	...	...	3	...	...	...	2	3	...	20	5	...
Middlewich .....	...	1	3	...	...	...	...	3	...	1	2	...	...	6	4	9	...	...	...	2	...	...	...	...	...	...	3	3	28	1	...
Mottram .....	...	...	...	...	...	...	...	1	...	...	3	...	...	5	4	...	1	...	...	...	...	...	...	1	5	...	1	19	...	...	...
Nantwich .....	...	...	1	...	2	...	...	9	2	4	6	1	3	8	14	6	...	1	2	...	...	...	...	...	...	5	1	1	13	...	...
Neston and Parkgate .....	...	...	...	...	2	...	...	5	...	4	4	2	...	6	3	6	1	...	...	...	...	2	...	...	...	9	1	2	50	...	...
Northwich .....	...	4	1	7	4	2	...	8	3	7	22	...	6	18	10	16	2	14	1	4	3	5	...	...	2	5	...	3	2	...	...
Runcorn	3	...	...	5	6	1	...	17	5	5	18	1	1	11	36	33	5	6	...	...	...	9	1	27	...	17	1	82	...	...	...
Sale.....	...	1	1	5	1	4	...	8	1	3	16	...	3	17	16	9	2	2	1	6	2	4	2	...	8	2	5	35	7	...	...
Sandbach .....	...	...	...	1	1	...	...	2	1	2	6	1	1	11	6	5	...	1	...	...	...	2	...	...	...	8	5	...	9	10	...
Tarporley .....	...	...	...	...	...	...	...	2	...	...	2	...	...	1	5	2	3	1	...	...	...	2	...	...	...	8	5	...	...	...	...
Wilmalov .....	...	...	2	...	...	2	...	1	...	1	11	1	2	11	5	8	2	...	1	1	...	3	...	...	...	1	5	5	1	28	...
Winsford .....	...	...	...	4	3	...	...	5	3	2	9	...	...	15	12	7	...	3	1	...	...	5	1	...	...	14	3	1	40	...	...
Yearlley-cum-Whaley .....	...	...	...	...	...	...	...	2	4	1	3	1	1	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	5	...	39	12	56	30	28	...	175	46	61	259	19	27	315	221	243	35	71	19	29	11	91	8	38	168	112	31	760	110	...	
Rural Districts.																																
Bucklow .....	...	...	1	1	...	6	1	16	2	5	34	1	1	31	25	21	3	1	1	2	2	2	2	4	10	8	2	86	...	...	...
Chester .....	...	2	...	3	3	3	...	5	...	1	14	...	...	10	7	5	...	...	2	...	...	1	...	2	3	4	2	52	10	...	...
Congleton	1	...	2	2	...	2	...	4	2	2	17	1	2	18	14	9	...	1	...	1	...	5	...	2	4	12	2	32	22	...	...
Disley .....	...	...	...	...	...	...	...	4	...	...	7	...	...	2	1	4	...	...	1	...	...	...	...	...	...	3	1	...	5	1	...
Macclesfield .....	...	...	1	1	2	1	...	4	2	...	23	...	1	23	10	12	1	...	...	1	...	2	6	...	...	6	7	4	52	3	...
Malpas .....	...	...	...	...	1	1	...	3	...	...	6	...	1	8	4	4	...	4	1	...	...	2	...	...	1	7	3	2	29	4	...
Nantwich .....	...	2	2	...	2	3	1	17	2	5	3	...	2	61	18	17	5	1	2	1	1	5	...	2	33	9	5	98	...	...	...
Northwich .....	...	1	2	4	3	...	...	13	3	6	24	...	3	28	18	20	4	2	...	...	...	4	1	3	23	6	4	102	...	...	...
Runcorn	1	...	4	...	7	3	8	1	12	...	7	22	2	5	48	32	14	2	6	3	...	2	4	...	7	15	13	3	69	39	...	
Tarvin .....	...	3	...	...	...	...	...	4	...	2																					

TABLE III.—INFECTIOUS DISEASE.

Showing cases notified and cases removed to Hospital during the year ending December 31st, 1914, classified according to Diseases and Localities, and giving particulars as to Isolation Hospital Provision.

SANITARY DISTRICTS.	Number of cases notified in each District.											Number of cases removed to Hospital from each District.											Is Hospital Isolation provided?				
	Diphtheria including Membranous Croup.	Erysipelas.	Scarlet Fever.	Euteric Fever.	Continued Fever.	Puerperal Fever.	Cerebro-Spinal Meningitis.	Polio-myelitis.	Pulmonary Tuberculosis.	Other forms of Tuberculosis.	Ophthalmia Neonatorum.	TOTAL.	Diphtheria including Membranous Croup.	Erysipelas.	Scarlet Fever.	Euteric Fever.	Continued Fever.	Puerperal Fever.	Cerebro-Spinal Meningitis.	Polio-myelitis.	Pulmonary Tuberculosis.	Other forms of Tuberculosis.		Ophthalmia Neonatorum.	TOTAL.		
Municipal Boroughs.																											
Congleton	19	13	208	1		2		3	10	12	2	268	2		88	1									91	Yes. West Heath Joint.	
Croze	101	24	134	5		2			64	36	10	376	84		118	3		1			4				210	Yes. Croze.	
Dukinfield	10	24	143	6		3		1	60	13	1	261			143	6									149	Yes. Hyde.	
Hyde	23	66	471	8		2			56	13		639	7		445	6									458	Yes. Ditto.	
Macclesfield	38	15	131	10		4			62	29	4	293	25		94	4					2				125	Yes. Macclesfield.	
Stalybridge	5	20	124	3		1			60	8	4	225			15										15	Small-pox only, Harthead.	
	196	162	1209	33		14		4	312	111	21	2062	118		903	20		1			6				1048		
Other Urban Districts.																											
Alderley Edge ..	2	1	7						2	1		13	2		5										7	Yes. Monsall.	
Alsager	13		7						5			25															Yes. West Heath Joint.
Altrincham	6	11	43			1			45	8	3	117	6		42			1					1		49	Yes. Altrincham.	
Ashton-upon-Mersey ..	9	13	32	1					9	5		69			4	1									5	Yes. Monsall.	
Higher Bebington ..	3	2	1						2	2		10	3	1	1										5	Yes. Wirral Joint.	
Lower Bebington ..	60	13	63	4		1			19	26		186	55	1	54	1									111	Yes. Ditto.	
Bollington	9		17						3			29	6		10										16	Yes. Macclesfield.	
Bowdon		2	1						4			7															Yes. Altrincham.
Bredbury and Romiley ..	3	6	48	4		1			9	13	2	86			19	1					1				21	Yes. Hyde.	
Bromborough	7	1	27				1		2	4		42	6		25										31	Yes. Wirral Joint and Pool Works.	
Buglawton		1	38						3	2		44			13						2				15	Yes. West Heath Joint.	
Cheadle and Gatley		14	55					1	8	3	1	82		7	27										34	Yes. Monsall and Small-pox Hospital.	
Compstall	1	1	16	1								19	1	1	16	1									19	Yes. Hyde.	
Ellesmere Port and Whitby ..	15	20	36	1					29	12	2	115	7		28										35	Yes. Wirral Joint.	
Hale	3		23						12	6		44			11										11	Yes. Monsall.	
Handforth		2										2														No.	
Hazel Grove and Bramhall	2	3	26	1					11		1	44			5										5	Yes. Hyde.	
Hollingsworth	2	1	24	1					3	3		34															Small-pox, Mottram Moor.
Huole	3	2	8						4	3		20	1		6										7	Yes. Chester.	
Hoylake and West Kirby	10	3	26	1				5	28	9	2	85	7	1	19										27	Yes. Wirral Joint.	
Knutsford	6			1		1			4	4		16	4			1		1			1				7	Yes. Monsall.	
Lymm	6	3	9									18	4		2										6	Yes. Lymm.	
Marple		3	18						5	6		32			3										3	Yes. Hyde.	
Middlewich	3	3	1			2			4	2		15	3	1											4	Yes. Northwich Joint and Marbury.	
Mottram		2	4	1					2			9															Yes. Hyde and Small-pox, Mottram Moor.
Nantwich	21	4	6						13	8		52	18		4										22	Yes. Alvaston Joint.	
Neston and Parkgate									10	4	1	15															Yes. Wirral Joint.
Northwich	17	5	17	3		1			11	5		59	8		9	2									19	Yes. Northwich Joint and Marbury.	
Runcorn	56	23	78	9					44	10	1	224	8		30										36	Yes. Runcorn.	
Sale	37	7	62	2		1			34	10	2	155	7		15										42	Yes. Monsall.	
Sandbach	5	9	15	1					2	1	1	34	4		13	1					14	6			18	Yes. West Heath Joint, Arclid for Small-pox.	
Tarporley	10		8						2	2		22	5		1										6	Yes. Chester.	
Widnes		4	14			1			7	5	1	32			5										5	Yes. Monsall.	
Winsford	102	3	21	2		1			12	8		149	84		12	2					2				100	Yes. Davenham and Marbury.	
Yeasdaley-cum-Whaley	1		4						3	1		9			3										3	Yes. Hyde and High Peak.	
	412	165	755	33		10	1	6	351	163	17	1913	237	12	332	10		2			20	6	1	670			
Rural Districts.																											
Bucklow	8	8	119	1		4			25	12	3	176	4		83			2			5	1			95	Yes. Monsall.	
Chester	18	4	30	1					24	4		79	10		25	1									37	Yes. Chester.	
Congleton	18	5	44	4					13	3	1	86	15		19	1									35	Yes. West Heath Joint.	
Dialley	7		2						7	4		20	1		4										5	Yes. Hyde.	
Macclesfield	20	2	59	1		1	2	1	8	3		97	11		30										41	Yes. Macclesfield and Higher Sutton for Small-pox.	
Malpas	10	1	16						5			32			2										2	Yes. Chester.	
Nantwich	37	4	38	2		1			19	7	1	109	31		31	1					8				71	Yes. Nantwich Joint and Small-pox.	
Northwich	47	7	56	1		1	1		28	14		155	34		30										64	Yes. Northwich Joint.	
Runcorn	63	15	73	3				2	31	25	1	213	44		68	3									115	Yes. Dutton. Moore (Small-pox).	
Parvin	5	3	29						7	1		45	2		23										25	Yes. Chester.	
Pintwistle	6	2	26	1					4			39			1										1	Yes. Mottram Moor.	
Wirral	24	5	77	9					22	8	4	149	14		53	4									71	Yes. Wirral Joint.	
	257	54	509	23		7	3	3	193	81	10	1200	166		362	11		2			13	1		562			
Administrative County	865	381	2533	89		31	4	13	858	355	48	5176	521	12	1654	41		5			39	7	1	2280			

